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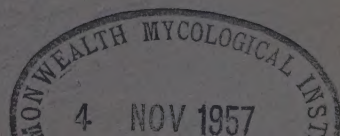
THE VETERINARY BULLETIN

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Prepared by the
COMMONWEALTH BUREAU OF ANIMAL HEALTH
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DISEASES CAUSED BY BACTERIA AND FUNGI

TEE, G. H. (1957). **The incidence of penicillin-resistant strains of *Staphylococcus aureus* in dairy herd samples.**—*Mon. Bull. Minist. Hlth Lab. Serv.* **16**, 141-144. [Author's summary modified.] **3162**

In a 2 year period (1954-56) the incidence in Dorset of penicillin-resistant *Staph. aureus* in herd milk samples increased from 9% to 37%. Evidence was produced that the use of penicillin in treating bovine mastitis—usually of streptococcal origin—had been widespread. It is suggested that this may have been responsible for the emergence of penicillin-resistant strains of staphylococci.

BRIGGS, S., CRAWFORD, K., ABRAHAM, E. P. & GLADSTONE, G. P. (1957). **Some properties of Gram-negative bacilli obtained from a strain of *Staphylococcus aureus* in the presence of benzylpenicillin.**—*J. gen. Microbiol.* **16**, 614-627. [Authors' summary slightly modified.] **3163**

Gram-negative bacilli were obtained from the Oxford strain of *Staph. aureus* in the presence of benzylpenicillin. Single organisms were isolated and the properties of bacilli derived from these were compared with those of the parent staphylococci. The two types of organism differed strikingly in morphology, staining and various biochemical reactions. The bacilli were much more resistant to benzylpenicillin than the parent staphylococcus, but much less resistant to polymyxin. Staphylococci were recovered from all the strains of bacilli. More than half of the recovered strains resembled the original staphylococcus in all properties tested, including phage type, when first isolated. The remainder formed a somewhat heterogenous group, differing in some properties from the parent. Later, some members of this heterogenous group also became indistinguishable from the original staphylococcus.

GLADSTONE, G. P. & VAN HEYNINGEN, W. E. (1957). **Staphylococcal leucocidins.**—*Brit. J. exp. Path.* **38**, 123-137. [Abst. from survey of paper (p.i.)] **3164**

Staphylococcal leucocidins were assayed either by determination of the minimum leucocidal dose of a culture filtrate or by neutralization tests with antitoxins. The 3 leucocidins studied were α -haemolysin, the Panton-Valentine leucocidin, and δ -haemolysin (the leucocidal action of which had not been adequately demonstrated before). They were distinguished by their morphological effects on leucocytes, and by differences in the susceptibility of leucocytes from various species and in the frequency of production by different strains. Other evidence that they are distinct substances is given.

MURPHY, J. M. (1956). **Mastitis—The struggle for understanding.**—*J. Dairy Sci.* **39**, 1768-1773. **3165**

The need for a proper understanding of the problem of bovine mastitis is stressed. It is considered that of the number of organisms associated with mastitis 4 types are responsible for 99% of all mastitis, namely, *Streptococcus agalactiae*, other streptococci, staphylococci, and bacilli, (coliform, pseudomonas, etc.). The clinical manifestations of the different forms of mastitis, laboratory diagnosis (especially of non-clinical cases) and control are discussed.

—T.E.G.R.

FINCHER, M. G. (1957). **Infectious mastitis.**—*Sthwest. Vet.* **10**, 119-124. **3166**

Varying opinions on the status of *Streptococcus agalactiae* as the cause of infectious mastitis are discussed. Control depends on diagnosis in the individual cow, effective treatment and improvement in milking technique and management to obviate injury to teats. During 1955-56 under the New York State Mastitis Programme, 35,000 cows in 854 herds were

dealt with. The percentage of cows yielding abnormal milk was reduced from 19 to 7.1% and of infected quarters from 15 to 3.5%.

—A. ACKROYD.

RENK, W. (1957). Beiträge zur Diagnose und Pathogenese der akuten Mastitiden. [**Diagnosis and pathogenesis of acute mastitis.**]—*Zbl. VetMed.* 4, 325-340. [English, French and Spanish summaries. English summary modified.] **3167**

The gross and microscopic changes in *E. coli* mastitis in the cow, goat and pig are described. The most significant changes are oedema, hyperaemia of varying degree with haemorrhage, thrombus formation in the blood and lymph vessels, and necrotic changes within the inflamed udder tissue. The pathogenesis of these lesions is discussed. In differential diagnosis acute *C. pyogenes* mastitis and acute caseating tuberculous mastitis must be considered. Mixed infections of *E. coli* and *C. pyogenes* as well as of *E. coli* and *Mycobact. tuberculosis* may complicate the pathological process.

STETSON, C. A., JR. (1956). The endotoxic properties of lysates of group A hemolytic streptococci. — *J. exp. Med.* 104, 921-934. **3168**

S. searched for evidence that endotoxin is demonstrable in Group A β -haemolytic streptococci.

He disrupted washed organisms from culture by shaking with glass beads and made tests on normal rabbits. Supernatant fluid from this material given i/d produced a severe delayed inflammatory reaction; when given i/v there was a systemic reaction, with fever, leucopenia and peripheral vascular phenomena. Rabbits previously infected with Group A streptococci developed more pronounced reactions. The lysates also produced local and generalized Schwartzman phenomena.

He claimed that the presence of endotoxin was probably demonstrated, within the usual meaning of the term, and that there were no essential differences between these effects and those produced by endotoxin from Gram-negative bacteria. He argued that the active material in these experiments was derived from the streptococcal cells themselves, although he admitted that other interpretations of the data were possible. He emphasized the great difficulty in distinguishing between delayed hypersensitive reactions and those produced by endotoxins.—W.A.P.

OBIGER, G. (1957). Über einen nicht eingruppierbaren Streptococcus aus bovinen

Tonsillen. [**An unclassifiable streptococcus from bovine tonsils.**]—*Zbl. Bakt. I. (Orig.)* 168, 388-391. [English, French and Russian summaries. English summary modified.] **3169**

A streptococcus isolated from bovine tonsils possessed a CAMP-property that usually belongs exclusively to the Group B streptococci, differing from these, however, by its reaction in methylene-blue milk and by fermenting aesculin. The strain had none of the known serological group-antigens.

GUSTAFSON, B. A. & SVEHAG, S-E. (1956). The resistance-condition in *Bac. anthracis* and some anthrax-like organisms.—*Nord. VetMed.* 8, 902-908. [In English. German and Swedish summaries.] **3170**

Of 44 strains of *Bacillus anthracis*, all except one were sensitive to penicillin and all were sensitive to streptomycin, chlortetracycline, erythromycin, chloramphenicol and oxytetracycline, but most were resistant to sulphonamides. Strains of *B. cereus* and *B. mycoides* were only slightly sensitive to penicillin but were sensitive to the other antibiotics. In the "Perlschnur" test, described by Jensen & Kleemeyer, 1953 [*V.B.* 24, 1360], all the anthrax-like organisms gave negative results and all the strains of *B. anthracis* which were sensitive to penicillin, gave positive results, but the strain which was only slightly sensitive to penicillin gave a negative result. This test should not be used alone to diagnose *B. anthracis*.

—A. ACKROYD.

MAGLIONE, E. (1956). Sulla presenza del micobatterio tubercolare nelle urine di bovini tubercolotici. [*Mycobacterium tuberculosis* in the urine of tuberculous cattle.]—*Ann. Fac. Med. vet. Torino* 6, 29-52. [English, French and German summaries.] **3171**

The organism was demonstrated biologically in the urine of 32 out of 84 tuberculous slaughter cattle, as follows: in 8 of 11 samples from animals with macroscopic TB. lesions in the kidneys; in 21 of 53 from cases of generalized TB.; and in 3 of 14 cases of chronic TB. of one or more organs.—T.E.G.R.

GUOTH, E. (1957). Tuberkulinra reagáló tehenek és azok főcstejének vizsgálata szopósborjak gümőkóros fertőzőttségének kiderítése céljából. [**Examination of cows reacting to the tuberculin test and their colostrum and calves.**]—*Mag. állator. Lapja* 12, 41-43. [English and Russian summaries. Abst. from English summary.] **3172**

It was considered that 2 calves developed

pulmonary TB. through drinking colostrum from infected cows.—M.G.G.

TAYLOR, K. B. & HUNTER, G. (1957). **The intrathecal tuberculin reaction in the rabbit.**—*Brit. J. exp. Path.* **38**, 164-171. [Authors' summary modified.] **3173**

A specific sensitivity of the leptomeninges to tuberculo-protein was produced in rabbits by injection into the cisterna magna, and the resulting meningitis was studied in serial samples of cerebrospinal fluid. Changes were noted in the distribution of bromide between c.s.f. and serum after the i/v injection of sodium bromide. These changes may provide a measure of the meningeal response. The rabbit appears to be a useful animal for the study of meningeal reactions.

KOKURICHEV, P. I. (1957). **[Susceptibility of fowls to various types of tubercle bacilli.]**—*Proc. Lenin Acad. agric. Sci.* **22**, No. 3, pp. 45-48. [In Russian. Translation of author's conclusions.] **3174**

Intramuscular inj. of 1 mg. of human, bovine or avian types of tubercle bacilli caused inflammation and tissue necrosis at the site of injection. In fowls inoculated with a culture of human type bacilli, lesions were restricted to the site of injection; there were no lesions in internal organs. Reaction to tuberculin was present for 30 days after infection and subsequently disappeared. The bovine type caused the formation of isolated lesions in the internal organs, as well as at the injection site. The same dose of avian type bacilli caused generalized TB. Cultures of bovine and human type, passaged several times in fowls, caused a heavier infection than non-passaged cultures.

ROBSON, J. M., SULLIVAN, F. M. & DIDCOCK, K. A. (1957). **A method for the study of immunity to tuberculosis.**—*Brit. J. exp. Path.* **38**, 172-177. [Abst. from authors' summary.] **3175**

A method is described for the detection of immunity to TB. in mice. The immunizing dose is injected intracorneally or intradermally and the challenge dose intracorneally. In the immune eye there is less cellular reaction and no evidence of bacterial multiplication. Immunity was induced not only by virulent bovine tubercle bacilli but also by B.C.G. and by H37Ra. These produced less cellular reaction than the virulent strain. B.C.G. showed some evidence of multiplication but H37a did not multiply.

YAMANE, I. (1957). **A crystalline substance isolated from egg yolk which promotes**

growth of a minute inoculum of human tubercle bacilli.—*Nature, Lond.* **179**, 45-46. **3176**

For the preparation of the crystalline substance 10% egg yolk suspension in 6% "Tween 80" aqueous soln. was autoclaved at 120°C. for 15 min. The resulting extract was then purified at 10° to 15°C. The yield of crystalline substance was about 1% of egg yolk; its morphology and chemical properties are described. One advantage is its heat stability which makes it possible to autoclave the synthetic agar medium containing it. Such a medium, inoculated with *M. tuberculosis*, H37 Rv, produced a quicker growth than egg medium.—T.E.G.R.

ANON. (1957). **Tuberculin treatment of pulmonary tuberculosis.**—*Lancet* **272**, 1181-1182. **3177**

Treatment with tuberculin may be useful where the lesions are recalcitrant to ordinary therapeutic methods. But it has not been proved to be effective for the chronic, fibro-caseous type of lesion, which produces resistant organisms. For the early acute lesion cortisone in association with chemotherapy seems preferable.—M.G.G.

SIGURDSSON, B. (1957). **Johne's disease.**—*Vet. Rec.* **69**, 316. **3178**

Commenting on a discussion on the merits of the French type Johne's disease vaccine containing living bacilli *versus* the vaccine containing heat-killed bacilli, S. pointed out that: (1) There is no obvious reason why living bacilli should afford better protection against Johne's disease as it seems unlikely that they multiply after inoculation; (2) Very extensive virulence trials would be needed before it could be stated that certain strains of *M. johnei* used as vaccine are completely non-infective under all conditions; (3) The 5 mg. dose of vacuum-dried killed bacilli as used in Iceland contains only twice as many bacilli as the French vaccine. Vaccination with it is still giving excellent protection to sheep injected with a single dose in 1950. (4) The suggestion that skin allergy may wane rapidly after vaccination with killed bacilli should be directly tested.—A. ACKROYD.

REIMERS, H. (1957). **Hinweise und Erfahrungen bei der Pyogenesmastitis des Rindviehs.** [*Corynebact. pyogenes mastitis in cattle.*]—*Tierärztl. Umsch.* **12**, 150-152. **3179**

C. pyogenes mastitis was cured in 23 cows by massive parenteral doses of antibiotics, sulphonamides and "Othromin" (hexamethylenetetramine thiocyanic acid), and local treat-

ment with terramycin and aureomycin. The affected quarter was carefully stripped before the instillation of the antibiotics.—M.G.G.

BRYGOO, E. R. (1957). Étude sur la position du bacille de Whitmore dans la systématique. [Classification of Whitmore's bacillus.]—*Ann. Inst. Pasteur* **92**, 688-692. [English summary modified.] **3180**

B. gave reasons which justify the classification of *Pfeifferella whitmori* with the Pseudomonadaceae and not with the Parvobacteriaceae. He proposed the name *Whitmorella pseudomallei*. The genus *Whitmorella* should be classified with the Pseudomonadae, next to the genus *Xanthomonas*.

GOURDON, R., GOURDON, J. -M., HENRY, M. & QUINCHON, C. (1957). Recherches sur *Pasteurella septica*. I. Étude bactériologique de souches isolées d'animaux des espèces porcine et ovine. [Studies on *Pasteurella septica*. I. Bacteriological study of strains isolated from pigs and sheep.]—*Ann. Inst. Pasteur* **93**, 251-256. [English summary modified.] **3181**

Strains of *Past. septica* from pigs possess rather stable properties. On the contrary, strains from sheep have many variable morphological, cultural and biological characters. It seems that, in France, a biochemical type of *Pasteurella* with a corresponding morphology, is found in pigs. The pathogenicity of this type is variable.

GÜRTÜRK, S. (1957). Die Einwirkung von Streptomycin auf *Pasteurella bubalisepctica* in vitro und in vivo. [Action of streptomycin on *Past. septica* in vitro and in vivo.]—*Dtsch. tierärztl. Wschr.* **64**, 230-235. **3182**

Tests in vitro of three commercial preparations of dihydrostreptomycin sulphate against 3 strains of *Past. septica* revealed differences in their activity (minimum effective concentrations ranged from 0.5 to 10 µg./ml.). In tests against infections with the same organism in mice and buffaloes, one preparation proved inactive, one was curative at 2 mg. daily, given i/m on three consecutive days, and the third (the most active, in vitro) at 1 mg. daily, given in the same way. Success depended on treatment being instituted before drowsiness had set in.—G. P. MARSHALL.

DHANDA, M. R., DAS, M. S., LALL, J. M. & SETH, R. N. (1956). Immunological studies on *Pasteurella septica*. I. Trials of adjuvant vaccine.—*Indian J. vet. Sci.* **26**, 273-284. **3183**

The authors prepared an oil-adjuvant

vaccine, similar to Bain's vaccine [*V.B.* **25**, 1890], from formolized cultures on a yeast-extract agar. Most of the cattle inoculated with this vaccine survived challenge with massive doses of virulent *Past. septica* when tested in batches at intervals up to 8 months, as compared to few survivals to challenge even 2 months following vaccination with the 'commercial broth vaccine'.—R. N. MOHAN.

DUNNE, H. W., GLANTZ, P. J., HOKANSON, J. F. & BORTREE, A. L. (1956). *Escherichia coli* as a cause of diarrhea in calves.—*Ann. N. Y. Acad. Sci.* **66**, 129-135. [Abst. from authors' summary.] **3184**

E. coli has been isolated more often than any other organism from calves dying from scours. Calf scours was produced by feeding small amounts of a pathogenic strain of *E. coli* in the first milk consumed after birth. Control calves remained healthy. Oral administration of antibiotics to new-born calves has controlled the disease on affected farms. The absence of pneumonia in calves dying from scours caused by *E. coli* suggests that it is different from the pneumo-enteritis of viral aetiology.

ROBERTS, D. S. (1957). *Escherichia coli* infection in lambs.—*Aust. vet. J.* **33**, 43-45. **3185**

This records the isolation of *E. coli* O78 from lambs with colibacillosis and meningitis.

—K. G. JOHNSTON.

GRABER, C. D. & DODD, M. C. (1956). Hemagglutination with red cells sensitized with antigens of enteropathogenic *Escherichia coli*.—*Ann. N. Y. Acad. Sci.* **66**, 157-161. [Authors' summary modified.] **3186**

Preliminary studies, using an aqueous extract of *E. coli* O127:B8 capable of sensitizing human r.b.c. for the demonstration of haemagglutinins in OB rabbit antiserum, indicated that this extract probably contained primarily the B antigen.

NETER, E., WESTPHAL, O., LÜDERITZ, O. & GORZYNSKI, E. A. (1956). The bacterial hemagglutination test for the demonstration of antibodies to Enterobacteriaceae.—*Ann. N. Y. Acad. Sci.* **66**, 141-156. [Authors' summary modified.] **3187**

Both crude and purified enterobacterial antigens can be adsorbed on red blood cells. These modified r.b.c. can be used for the determination and titration of the corresponding antibodies. Purified lipopolysaccharides are not absorbed when in 5% glucose or 5% sucrose solutions, nor in isotonic CaCl₂ solution, but are readily absorbed in isotonic solns. of NaCl,

KCl or sodium citrate. Modified human r.b.c.—in contrast to sheep r.b.c.—are not lysed in the presence of homologous bacterial antibodies and human or g. pig complement, either at 30° or at 37°C. Several antigens can be absorbed simultaneously, thus making possible a polyvalent enterobacterial haemagglutination test. The enterobacterial haemagglutination test is much more sensitive than the conventional bacterial agglutination test and its centrifugation modification. Among patients with *E. coli*, *Salmonella*, and *Shigella* diarrhoeal disease, a few had moderate rises in haemagglutinin titre against heterologous enteric bacilli. This test should be valuable in the determination of co-primary infections and of the epidemiology of enteric diseases.

AKIYA, S. (1956). **Studies on synthetic compounds active against salmonella-dysentery group bacilli.**—*Jap. J. exp. Med.* **26**, 91-112. [In English. Author's summary modified.] **3188**

Of 1,028 synthetic organic compounds tested for *in vitro* antibacterial activity against *Staphylococcus aureus*, *Escherichia coli*, *Shigella dysenteriae*, *Shigella flexneri*, *Salmonella typhi*, *S. paratyphi* and *S. enteritidis*, 436 were active against at least one of the test organisms at a concentration of 10^{-4} Mol. 74 of these inhibited the growth of 7 Gram-negative bacteria tested at minimum effective concentrations ranging from 10^{-4} to 10^{-5} Mol. and all except 3 were also active against *Staph. aureus* at the same conc. Another 61 of the 436 active compounds only inhibited the growth of *Staph. aureus* at the same concentration.

GÜNTHER, M. (1956). Adatok a lovak Bact. pyosepticum (viscosum) okozta vérfertőzésének kezeléséhez. [Treatment of *Bacterium viscosum equi* infection in horses.]—*Mag. állator. Lapja* **11**, 391-393. [In Hungarian. English and Russian summaries. Abst. from English summary.] **3189**

Streptomycin cures the disease rapidly provided that it is injected as soon as the temp. rises. The curative effect is less pronounced if the injection is delayed. Treatment with penicillin and sodium sulphamethylthiazole combined with calcium was not effective.—M.G.G.

WALKER, J. H. C. (1957). **Organic fertilisers as a source of salmonella infection.**—*Lancet* **273**, 283-284. [Author's summary modified.] **3190**

Of 123 samples of organic fertilizers, purchased mainly in retail shops, 50 (40%) were positive for salmonella. Bone-meal was the most

heavily contaminated (70% of specimens). Of the 34 different types of salmonella isolated, 28 were from bone-meal. Organic fertilizers may be a source of some of the unexplained salmonella outbreaks in man and animals. Moreover, since much of the raw material and some finished products (e.g. bone-meal) are imported from abroad, their use may also be responsible for introduction and spread among animals of other diseases.

GENEV, K. & SLAVKOV, I. (1956). [Aetiology of swine paratyphoid and an allergic test for its diagnosis.]—*Sborn. nauch. Trud. vet. Inst. Minist. Zemed., Sofia* **6**, 107-112. [In Bulgarian. English and Russian summaries.] **3191**

Of 365 strains of salmonella isolated from outbreaks of swine paratyphoid, 362 were *S. cholerae-suis*. Not one strain of *S. typhi-suis* was identified. An allergen prepared from lysed *S. cholerae-suis* was injected i/d in 0.2 ml. doses. Tests on 645 infected and 137 non-infected pigs indicated that the test was a specific diagnostic aid. In experimental infection, reaction to the test appeared before the clinical signs.—R.M.

WOOD, H. N. & SCHNEIDER, H. A. (1957). **Distribution, concentration and properties of salmonellosis resistance factor (SRF).**—*Fed. Proc.* **16**, 403. **3192**

Natural resistance of mice to *S. typhimurium* can be raised by a nutritional factor found in several plants, including wheat and barley, and in egg white. This factor was estimated quantitatively by the double strain (a combination of a virulent and an avirulent strain) inoculation method using genetically marked strains of *S. typhimurium*. Testing of 27 varieties of wheat did not reveal any marked differences referable to their genetic constitution. The factor is increased by malting and destroyed by ashing. It can be extracted with ethanol, is soluble in water from which it cannot be removed by immiscible organic solvents although it can be dialyzed; it is adsorbed by charcoal and can be eluted with glacial acetic acid. One mg. concentrate per 500 g. diet gave 90% protection against fatal salmonella infection.

—T.E.G.R.

ATKINSON, N. & BULLAS, L. R. (1956). **Salmonella bacteriophages. IV. Some bacteriophages of *S. bovis-morbificans*.**—*Aust. J. exp. Biol. med. Sci.* **34**, 445-453. **3193**

This paper deals with some of the characteristics of seven phages obtained from five

lysogenic indicator strains of *S. bovis-morboficans* and their allocation to types.

—K. G. JOHNSTON.

NGUYEN-VAN-AI & NGUYEN-NGOC-DAI. (1957). Premier cas de brucellose bactériologique confirmée au Vietnam. [*Br. abortus* isolated from cattle for the first time in Vietnam.].—*Bull. Soc. Pat. exot.* **50**, 21-23. **3194**

Br. abortus was isolated from the amniotic fluid of the aborted foetus of a cow, which had been imported into Vietnam 1½ months previously.—M.G.G.

KOBETS, S. M. (1956). [Diagnosis of brucellosis in cattle by the rapid agglutination test.].—*Trud. mosk. vet. Akad.* **12**, pp. 48-53. [In Russian.] **3195**

The rapid agglutination test for bovine brucellosis is simple to perform and in many cases appears to be more sensitive than the standard agglutination test and the c.f. test.

—M.G.G.

PAULUZZI, L. & CIMENTI, R. (1956). Saggi comparativi su alcune prove diagnostiche della brucellosi bovina con particolare riguardo al ring-test. [Evaluation of diagnostic tests in bovine brucellosis with special regard to the ring test.].—*Clin. vet., Milano* **79**, 365-373. [English summary.] **3196**

Of the various diagnostic tests investigated the haemagglutination, ring, and milk plate agglutination tests are considered most efficient, in the order given.—T.E.G.R.

MUNDT, W. (1957). Untersuchungen über Abortus Bang im Allgäu mittels ABR. [Incidence of brucellosis in cattle as revealed by the ring test.].—*Tierärztl. Umsch.* **12**, 223-227. **3197**

In Allgäu and South Swabia 23,127 cattle herds (82% of the total) were tested for brucellosis by means of the ring test. The incidence varied according to district; the highest was in Kempten where 20% of the herds were infected, the lowest in Mindelheim with 6%. In many herds 50%-70% of the animals were positive. The overall incidence of herd infection was 13%.

—M.G.G.

NASHKOV, D. & BALCHEV, M. (1956). [Allergic diagnosis of brucellosis.].—*Sborn. nauch. Trud. vet. Inst. Minist. Zemed., Sofia* **6**, 167-172. [In Bulgarian. English and Russian summaries.] **3198**

A new type of brucella hydrolysate, obtained by treating cultures with pancreatin,

was specific in the intradermal test on farm animals. 3-4 day cultures of various brucella strains were ground in the presence of acetone. After centrifugation the bacterial mass was vacuum dried, and 0.5 g. was suspended in 100 ml. water with 100 units pancreatin at pH 8.5 for 2 hours at 56°C. The filtrate was gradually acidified to pH 4.6 during several days' storage in a refrigerator, and was finally neutralized and passed through a Seitz filter.—R.M.

MCCLURE, T. J. & FYVIE, A. A. (1956). Vaginal mucus and serum *Brucella abortus* antibody titres.—*N. Z. vet. J.* **4**, 170. **3199**

Twenty calves, 8-9 months old and free from brucellosis, were inoculated s/c with 5 ml. of *Br. abortus* Strain 19 vaccine. Agglutination tests once a month for the next 3 months revealed that, except in 2 animals during the first test, the serum titre exceeded the vaginal mucus titre.—M.G.G.

SACQUET, E. & RENOUX, G. (1957). Une souche atypique de *Brucella* isolée d'une chèvre vaccinée par vaccin vivant. [Atypical strain of brucella isolated from a goat inoculated with live vaccine.].—*Ann. Inst. Pasteur* **93**, 263-266. [English summary modified.] **3200**

In the course of immunization of a goat with a live vaccine (typical *Br. abortus*, Strain 112) the authors isolated from the vaginal secretions of the animal an atypical *Brucella* strain, differing culturally, morphologically and serologically. As the possibility of an exogenous infection was excluded, it seems that an *in vivo* modification of the immunizing strain had taken place.

KOROTICH, A. S. (1957). [Epidemiological characteristics of brucellosis in the Ukrainian S.S.R.].—*J. Microbiol., Moscow* **28**, No. 5, pp. 86-90. [In Russian.] **3201**

It was estimated that during the past 12 years 70.6% of human cases of brucellosis in the Ukraine were infected from sheep and goats, 28.8% from cattle and 0.6% from pigs. Out of 286 brucella strains isolated from cattle, 219 were *Br. abortus*, 21 *Br. melitensis* and 42 *Br. suis*. In human beings infected from sheep and goats, 49.96% were infected by direct contact, 25.92% by contact with infected premises or excreta, 14.67% from working with skins and wool, 2.23% from the slaughter of infected animals, 1.62% from infected drinking water, and 1.22% from ingestion of infected meat.

In human beings infected from cattle, 86.61% had direct contact with infected, aborting cows or had ingested infected milk and

milk products; 4.35% were infected at the slaughter house, 1.74% by working with hides, and 7.3% by contact with infected premises or excreta.—R.M.

GELEV, I. (1956). [Aetiology and epidemiology of brucellosis in pigs.]—*Sborn. nauch. Trud. vet. Inst. Minist. Zemed., Sofia* **6**, 163-166. [In Bulgarian. English and Russian summaries.] **3202**

G. stated that this was the first report of the isolation of *Br. suis* in Bulgaria. The disease occurred on a farm in the Ludogorie region.

—R.M.

KAS'YANOV, A. N. (1956). [Study of a vaccine from *Brucella suis* Strain 61.]—*Trud. mosk. vet. Akad.* **12**, pp. 37-47. [In Russian.] **3203**

K. reported lab. tests on g. pigs and a small trial with 29 ewe-lambs and 18 calves exposed to natural infection, which confirmed the safety and effectiveness of the *Br. suis* Strain 61 vaccine first described by E. S. Orlov & M.I. Chernui-sheva (1952). [See also *V.B.* **25**, 3547.]—R.M.

CHRISTIANSEN, M. & THOMSEN, A. (1956). A contribution to surveying of the spread of brucellosis in hares in Denmark.—*Nord. VetMed.* **8**, 841-858. [In English. German and Danish summaries.] **3204**

During the 1954 and 1955 shooting seasons, systematic collection of blood samples from hares shot in 3 areas of Denmark revealed that 4.2% of 1,941 hares examined had positive reactions for brucellosis. In most places the morbidity was relatively low, but in one small area 38.7% of 150 hares were infected. Recent outbreaks of brucellosis in pigs in Denmark are almost certainly due to ingestion of offal from infected hares. Pigs should be prevented from having access to offal from hares. [See also *V.B.* **26**, 1544.]—A. ACKROYD.

CARRÈRE, L., ROUX, J. & SUIRE, A. (1957). Obtention d'un milieu sélectif pour l'isolement des *Brucella* en produits contaminés. [Selective medium for the isolation of brucella from contaminated samples.]—*Ann. Inst. Pasteur* **93**, 131-135. [English summary modified.] **3205**

The authors studied the effect of various bactericidal agents on brucella. They described a selective medium consisting of "albimi-agar" to which are added 8-hydroxyquinoline sulphate (quinosol), eosin, nystatin, polymyxin and bacitracin. Results with penicillin and framycetin were unsatisfactory.

PARNAS, J. & CHODKOWSKI, A. (1956). Zmienność pałeczek brucella kolekcji krajowej. [Colonial variation in *Brucella*.]—*Acta microbiol. polon.* **5**, 371-376. [In Polish. English summary modified.] **3206**

About 160 strains of *Brucella* isolated in Poland were examined in respect of colonial variation. Nine types of colonies were observed and two new colony forms not previously noticed (types IV and IX) were described and illustrated. The methods of examining colonial variation in *Brucella* were compared and the significance of this variation was discussed.

HIRT, G., KASZA, L. & KEMENES, F. (1957). A lovak leptospirosis hazánkban. [Leptospirosis of horses in Hungary.]—*Mag. állator. Lapja* **12**, 2-9. [In Hungarian. English and Russian summaries. Abst. from English summary.] **3207**

Leptospirosis of horses in Hungary is usually caused by *L. pomona* and is contracted from infected pigs and cattle. Clinical symptoms, when they occur, are fever lasting for 2-6 days, weakness, prostration, loss of appetite, and conjunctivitis sometimes followed by haematuria or icterus. Acute ophthalmia and serous inflammation of the hoof corium was observed in 2 horses, and dermatitis in another. *L. pomona* was isolated from the urine of 5 sick horses and *L. sejroe-hebdomadis* from a sixth. Two horses were experimentally infected with *L. pomona*; leptospira were isolated from the blood, urine, and kidney.—M.G.G.

BOKORI, J., HIRT, G., KASZA, L., KEMENES, F. & KUTHY, L. (1957). Adatok a hazai lóleptospirosis gyógykezeléséhez. [Treatment of leptospirosis in horses.]—*Mag. állator. Lapja* **12**, 9-15. [In Hungarian. English and Russian summaries. Abst. from English summary.] **3208**

Horses with experimental and spontaneous leptospirosis were cured by treatment during the pyrexial stage with 600,000 units of penicillin i/v, together with 4.5 g. of neosphenamine i/v or 1 mega-unit of penicillin in the form of "bismocillin" i/m. "Bismocillin" was ineffective, given at a later stage in the disease when icteric symptoms had appeared. The combined therapy with penicillin and neosalvarsan is recommended.—M.G.G.

I. & II. YANAGAWA, R., HIROTA, E. & KAWASHIMA, H. (1956). Studies on bovine leptospirosis in Japan. II. Distribution of antibodies among cattle and other animals. III.

Experiments on abortion with guinea pigs infected with leptospira.—*Bull. nat. Inst. Anim. Hlth.* No. 31. pp. 85-98 & 99-114. [In Japanese. Absts. from English summaries. For Part I, see *V.B.* 26, 1170.] **3209**

I. The agglutination-lysis test was positive for 263 out of 1,621 cattle, 24 of 57 pigs, 22 of 47 horses, and 2 of 79 goats. The leptospiral types, in order of frequency, were *L. icterohaemorrhagiae*, *L. hebdomadis* A (*L. autumnalis*), *L. australis* A, and *L. javanica*. In areas where leptospirosis occurred in human beings, human and animal sera were positive for the same type. 22 fowls and 12 rats were negative.

II. *L. autumnalis*, isolated from cattle, was injected into 21 g. pigs at various stages of pregnancy. All those infected by about the 50th day of gestation aborted, the remainder delivered their young prematurely or normally. Abortion took place at various stages of the infection: at the beginning or during the febrile stage (in these cases leptospira were recovered from the kidney, uterus and placenta); after the febrile stage (when leptospira could also be recovered from the foetus); or later in the infection (when leptospira could not be isolated from any of these 4 sources).—M.G.G.

TAMMEMAGI, L. & SIMMONS, L. (1956). Experimental infection of pigs with *Leptospira hyos Savino and Rennella*.—*Qd J. agric. Sci.* 13, 169-174. [Authors' summary modified.] **3210**

Three of four sows inoculated i/m with *L. hyos* showed agglutinins and excreted leptospira in the urine. The only clinical evidence of infection was inappetence and slight rise of temp. in two of the sows. Leptospiuria was evident at 15 days in one sow and at 21 days in the other two. It extended over periods of 20, 16 and 15 days respectively and was continuous with one sow and intermittent with the others. No leptospira were isolated from the sows when slaughtered up to 4 months after inoculation. Of 29 piglets born to the three infected sows, 4 were mummified and 6 were born dead. No leptospira were isolated from the dead piglets. The 3 infected sows and 11 piglets that were tested showed antibodies to *L. hyos*, the maximum titre being 1:3,000 in the sows and 1:1,000 in the piglets.

COGHLAN, J. D., NORVAL, J. & SEILER, H. E. (1957). Canicola fever in man through contact with infected pigs.—*Brit. med. J.* Feb. 2nd, 257-261. **3211**

The authors studied cases of leptospirosis caused by *L. canicola* in piggery workers in and

around Edinburgh between 1950 and 1955. Dogs on the farms had weak serological reactions and did not appear to be the source of the disease. Some of the pigs were reactors at high titre, but none had illness attributable to *L. canicola*.

Six pigs, 2-3 months old and negative reactors to both *L. canicola* and *L. icterohaemorrhagiae*, were inoculated with culture of the former and failed to develop either temperature reactions or clinical illness and when killed from the 10th to the 18th days after inoculation were free from lesions. Four of them developed high agglutination titres. Two lots of 20 non-infected pigs each were introduced into pens in a piggery in which reactors had been found; the pens had been cleaned by hosing and left vacant for 24 hours. Some of the new pigs developed high agglutination titres after a few weeks. Leptospira were demonstrated by dark-ground microscopy in urine from the floor of the pen and in a pooled specimen of urine from 12 of the pigs. Of individual specimens from 6 pigs in one pen, 5 were positive: a pooled sample of this urine was inoculated into 2 hamsters, which died on the 6th and 8th days; no leptospira could be demonstrated in specimens from them and the only lesion was some congestion in the peritoneum. The organisms grew in culture medium inoculated with blood from one of these hamsters. They were also seen in urine of 2 of 6 pigs inoculated with infected urine and these pigs developed a temperature reaction within a few days. The organism was most readily isolated in duplicate tubes of Korthof's or Stuart's medium inoculated with kidney tissue punched out with a Pasteur pipette, with incubation at 28°C. and examination up to 6 weeks.—W.A.P.

GLEISER, C. A. (1957). Experimental canine leptospirosis. III. Histopathologic changes.—*J. infect. Dis.* 100, 249-256. [Abst. from author's summary.] **3212**

In puppies with acute leptospirosis induced by a strain of *L. icterohaemorrhagiae* of enhanced virulence the main histological changes were in the liver and kidney. Those in the liver were primarily hepatocellular, with biliary stasis. Where the clinical response had been severe, disruption of the hepatic cords was a constant finding. In the kidney the epithelium of the convoluted tubules was most consistently damaged. Where clinical response had been severe there was sometimes haemorrhage into the spaces of Bowman and into the tubules. Focal interstitial collections of lymphocytes were not a regular feature.

YODER, H. W., BERGMAN, E. N. & GLEISER, C. A. (1957). **Experimental canine leptospirosis. IV. Evaluation of selected antibiotics in the therapy of acute experimental *Leptospira icterohaemorrhagiae* infections in immature dogs.**—*J. infect. Dis.* **100**, 257-267. **3213**

Streptomycin, penicillin, oxytetracycline and chlortetracycline were used in 6 trials with 103 puppies, acutely infected, of which 53 were treated. Treatment began on the 3rd day after infection when all had severe symptoms including jaundice in most cases, and continued for 5 days. Though each of the drugs reduced mortality, severity and duration of jaundice, fever, leptospiraemia, and reduced levels of blood urea nitrogen and plasma bilirubin, penicillin was the most effective. All the survivors developed positive agglutination titres but the titre was lower in the treated ones. Leptospiuria was demonstrable in 7 of the 21 surviving controls but in none of the 43 treated puppies which survived.—F.E.W.

GÄNGEL, G. & THEMANN, H. (1956). Untersuchungen über die Wirkung einiger Antibiotica auf Leptospiren-Kulturen. [**Action of some antibiotics on leptospira cultures.**]—*Z. Hyg. InfektKr.* **143**, 319-326. **3214**

In tests of the action of the undermentioned antibiotics on cultures of *L. icterohaemorrhagiae*, *L. canicola*, *L. grippo-typhosa* and *L. sejeoe*, the limits of growth-inhibiting concentrations in the medium were:— between 5 and 1 µg./cu.mm. of erythromycin, 1 and 0.5 µg. of tetracycline and 0.5 to 0.0025 i.u./cu.mm. of hostamycin.—W.A.P.

BALDWIN, E. M., JR. & GRINER, L. A. (1956). **Clostridia in diarrheal diseases of animals.**—*Ann. N. Y. Acad. Sci.* **66**, 168-175. [Authors' summary modified.] **3215**

Cl. welchii is classified into 6 types, each with a different toxin pattern. The toxins are antigenically distinct and may be common to more than one type. In the U.S.A. Types C and D have been incriminated as the cause of distinct animal diseases associated with diarrhoea. Haemorrhagic enterotoxaemia, a disease of unweaned calves and lambs, is caused by the toxins of *Cl. welchii* Type C. Death may occur 2-24 hours after the onset of symptoms. The longer the course of the disease the more likely the development of diarrhoea, which is frequently haemorrhagic. Chronic non-fatal cases characterized principally by diarrhoea probably occur. Beta toxin, the major toxin of

Cl. welchii Type C can be readily demonstrated in the jejunum and ileum of fatal cases. It is necrotizing and lethal, as can be seen by the extensive severe necrosis of the intestinal mucosa. Ovine enterotoxaemia is a disease of sheep of all ages, caused by the toxins of *Cl. welchii* Type D. The course of the acute form is usually 4-8 hours and is characterized by severe nervous symptoms, prostration, coma, and death. The chronic type is characterized principally by diarrhoea and inappetence. The major toxin is termed epsilon and it is necrotizing and lethal. The lesions it produces in the small intestine are less intense than those due to beta toxin.

LEV, M. (1956). **Aerobic cultivation of *Clostridium tetani*.**—*J. Bact.* **72**, 718-719. **3216**

Dedic and Koch [*J. Bact.* (1956) **71**, 126] reported that *Cl. tetani* grew under aerobic conditions when cobalt had been added to the medium; control cultures free from cobalt remained sterile. It is now reported by Lev that dense growth was obtained in aerobic cultures without cobalt, provided that freshly prepared medium was used or medium from which the dissolved oxygen had been removed by immersion in boiling water for 20 min. No growth was obtained when cobalt was added to medium which had been prepared 2 weeks previously. Similar results were obtained with *Cl. oedematiens*, *Cl. parapatrificum* and *Cl. botulinum*. It is concluded that the initial oxidation-reduction potential is more important for the growth of anaerobes than a substance which stimulates growth.—M.G.G.

KATIC, R. V. (1956). Ergebnisse vergleichender experimenteller Untersuchungen über die therapeutische Wirkung von Antitoxin, Formoltoxoid und die Kombination beider auf die durch *Cl. Botulini* (D)-Toxin hervorgerufene Intoxikation. [**Therapeutic action of antitoxin, formol toxoid and a combination of both on *Clostridium botulinum* Type D intoxication.**]—*Zbl. Bakt. I. (Orig.)* **166**, 510-516. [English, French and Russian summaries.] **3217**

Mice injected with up to 50 m.l.d. of *Cl. botulinum* Type D toxin recovered after treatment with homologous antitoxin. Treatment with formol toxoid merely prolonged the course of the intoxication. Combined treatment with antitoxin and formol toxoid cured the mice more quickly than antitoxin alone.—M.G.G.

DIKMEN, S. & VARDAR, T. (1956). Bir koyun atığında tesbit ettiğimiz *Vibrio foetus* vak'ası üzerinde. [*Vibrio fetus* infection in sheep in Turkey.]—*Türk vet. Hekim. dern. Derg.* **26**, 3119-3125. [In Turkish. Abst. from English summary.] **3218**

V. fetus was isolated from a sheep foetus in Turkey. It caused abortion and death when injected s/c into pregnant mice, g. pigs and sheep.—M.G.G.

HALBERT, S. P., KAZAR, C. S. & SWICK, L. (1957). Mixed bacterial infections in relation to antibiotic activities. II. The role of staphylococcal antibiotic in a *Clostridium septicum*-*Staphylococcus albus* infection.—*Antibiot. & Chemother.* **7**, 235-242. [Spanish summary p. 267. Authors' summary modified.] **3219**

An antibiotic from a strain of human ocular *Staphylococcus* was highly effective in protecting mice against large lethal challenges with spores of *Cl. septicum*. The protective effect was still evident when the antibiotic was given i/p in a single dose up to 6 hours following the injection of the spores.

FISHMAN, M. & SILVERMAN, M. S. (1957). Bactericidal activity of rat leucocytic extracts. I. Antibacterial spectrum and the subcellular localization of the bactericidal activity.—*J. exp. Med.* **105**, 521-528. [Authors' summary modified.] **3220**

The bactericidal activity of an extract of polymorphonuclear leucocytes of the rat, prepared by ultrasonic vibration, was confined primarily to the mitochondrial fraction. It was bactericidal both for Gram-positive bacteria (*Staphylococcus aureus*, β -streptococci, *Streptococcus pneumoniae*, *Corynebacterium diphtheriae*) and for Gram-negative (*Shigella dysenteriae*, *Salmonella enteritidis*, *Pasteurella pestis*). The Gram-positive organisms were the more susceptible.

✓ DROUHET, E. & SIMONNET, G. (1957). Candidose digestive chez le lapin. [*Candida albicans* infection of the digestive tract in rabbits.]—*Ann. Inst. Pasteur* **93**, 237-245. [English summary.] **3221**

In rabbits treated with chlortetracycline (100 mg. twice daily by mouth for 2 days) before intragastric inoculation of a suspension of *C. albicans*, an infection of the upper digestive tract was demonstrable by the constant and continuous presence of the fungus in oral and oesophageal mucus; and a slight intestinal infection, *C. albicans* being present in the faeces. Histological examination of the tongue revealed

yeasts and filaments in the lingual papillae, though no lesions were demonstrable. The authors studied the activity of an antifungal drug (resin-caprylate) in the infected rabbits.

—F.E.W.

✓ ROTH, F. J., FRIEDMAN, J. & SYVERTON, J. T. (1957). Effects of roentgen radiation and cortisone on susceptibility of mice to *Candida albicans*. — *J. Immunol.* **78**, 122-127. [Authors' summary modified.] **3222**

Pretreatment of adult Swiss albino mice with cortisone and X-irradiation, either singly or in combination, reduced inherent resistance to experimental infection with *C. albicans*. In the dosage range tested, X-irradiation enhanced susceptibility more effectively than did cortisone. Since the depressive action upon host resistance of cortisone and radiation in combination exceeds that exerted by any dose of either agent singly, or the additive of both agents, the combined action was interpreted as being synergic. Pretreated mice are of value for diagnostic and experimental studies of moniliasis.

✓ MENGES, R. W. & GEORG, L. K. (1957). Survey of animal ringworm in the United States. — *Publ. Hlth. Rep., Wash.* **72**, 503-509. [Authors' summary modified.] **3223**

In a survey of domestic, captive, and wild animals for ringworm, dermatophytes were isolated from 520 (20%) of the 2,538 hair specimens cultured. The organisms commonly isolated were *Microsporum canis* from cats, dogs, monkeys, and a chinchilla; *M. gypseum* from dogs, mice, rats; *Trichophyton mentagrophytes* from dogs, horses, chinchillas, g. pigs, mice, rats, a kangaroo, and an opossum; and *T. verrucosum* from cattle and a donkey. Data are presented concerning the frequency of skin lesions, method of diagnosis, and the epidemiology of ringworm in dogs and cats.

✓ MENGES, R. W., GEORG, L. K. & HABERMANN, T. (1957). Therapeutic studies on ringworm-infected guinea pigs.—*J. invest. Derm.* **28**, 233-237. **3224**

Four preparations were tested in a spontaneous outbreak of *Trichophyton mentagrophytes* infection in a lab. colony of g. pigs. The only one which was non-toxic and which eradicated the fungus from the host's body was a proprietary powder containing 45% technical capton, diluted 1:200 with water before use. 20 out of 22 g. pigs were freed from the fungus by 4 dips in this solution, at weekly intervals.—R.M.

— TORRES, G. & GEORG, L. K. (1956). A human case of *Trichophyton gallinae* infection. Dis-

ease contracted from chickens.—*Arch. Derm.* 74, 191-197. 3225

The authors reported infection of the scalp in a child in Puerto Rico with *Trichophyton gallinae* and they regard it as the second authentic case of infection of a human being with this organism. The child had played with a fowl which had minute dry scales on the comb, but no other lesions. *T. gallinae* was isolated in culture from the comb. Two fowls and three g. pigs inoculated with this culture developed lesions. Useful details are given of the history of infection with this organism and of forms seen in culture.—W.A.P.

ROBERTS, D. S. (1957). Some features of the mycotic dermatitis organism.—*Aust. vet. J.* 33, 141-143. 3226

R. described the cultural characteristics of two strains of *Actinomyces dermatonomus* isolated from two separate outbreaks of mycotic dermatitis in sheep.—D. F. STEWART.

MARIAT, F. (1957). Action *in vitro* de la 4.4'diaminodiphényl sulfone sur les actinomycètes aérobies pathogéniques. [Action *in vitro* of dapsone on aerobic pathogenic actinomycetes].—*C. R. Acad. Sci. Paris* 244, 3095-3098. 3227

Dapsone inhibited the growth of *Streptomyces madurae* at a conc. of 15 µg./ml. It was suggested that the drug be tried in the treatment of mycetomas caused by this fungus. *Nocardia*

asteroides was not inhibited by the same concentration of dapsone.—R.M.

LAWS, L. (1956). A pleuropneumonia-like organism causing peritonitis in goats.—*Aust. vet. J.* 32, 326-329. 3228

L. reported fatal peritonitis in a goat due to a pleuropneumonia-like organism. The organism grew readily in meat-liver medium enriched with either 10% ox or goat serum and on 10% sheep's blood agar, in both aerobic and micro-aerophilic atmospheres at 37°C. It failed to grow in Bacto-PPLO Enrichment Broth containing 1% Bacto-PPL Serum Fraction and did not pass Hormann-Ekwip D9 filters and Gradocol membranes of 800 and 1000 pore diameter. *In vitro* the organism was highly sensitive to oxytetracycline, slightly sensitive to chloramphenicol and streptomycin but resistant to penicillin. I/p injections of liquid cultures produced an acute fatal fibrinous peritonitis in a sheep and a goat and a chronic polyarthrititis in another sheep. In the acute disease the organism was excreted in the nasal exudate. G. pigs, mice and a calf were refractory to i/p injection. Administration i/v caused no ill effects in a sheep and a goat. Cultures given i/p had no effect on a goat which had received culture i/v 3 weeks previously. Serum from one goat contained complement-fixing antibodies to antigens prepared from both the homologous PPLO and a strain of the organism of bovine contagious pleuropneumonia when tested 15 days after inoculation.—I. G. PEARSON.

See also absts. 3378 (ornithosis and leptospirosis in fowls and turkeys); 3427 (salmonellosis in eggs); 3428 (food poisoning in man from meat and products); 3467 (count of viable bacteria); 3473 (report, Bechuanaland); 3474 (report Denmark).

DISEASES CAUSED BY PROTOZOAN PARASITES

GOBLE, F. C. & BOYD, J. L. (1957). Experiments on the alteration of properdin levels in experimental *Trypanosoma congolense* infections.—*J. Prot.* 4, Suppl. p. 17. [Only abst. given. Abst. from abst.] 3229

The administration of two products, calculated to increase and reduce respectively the properdin levels in mice, did not result in any alteration in the course of the disease as evidenced by the mean survival times or mortality rate in comparison with the untreated controls.

PACKCHANIAN, A. (1957). Chemotherapy of African sleeping sickness, III. Chemotherapy of experimental *Trypanosoma gambiense* and *Trypanosoma rhodesiense* infections in mice with captostibone.—*Trans. R. Soc. trop.*

Med. Hyg. 51, 257-264. [Abst. from author's summary.] 3230

Daily i/p administration of 150 to 200 mg./kg. for 4 days of captostibone [sodium 2-(carboxymethylmercapto) benzene stibonate] cured 80-100% of mice infected with *T. gambiense* or *T. rhodesiense*; with dosages of 75 to 125 mg./kg. daily for 4 days, percentages of cures were less. Untreated mice died from acute trypanosomiasis in 3-5 days.

TOBIE, E. J. (1957). The trypanocidal effect of nucleocidin *in vivo*.—*J. Parasit.* 43, 291-293. [Author's summary modified.] 3231

Three daily doses of nucleocidin totalling 0.15 mg./kg. cured about 95% of rats and mice infected with *T. congolense*, 91% of mice infected with *T. equinum*, and 73% of mice infected with *T. gambiense*.

GLEISER, C. A., THIEL, J. & CASHELL, I. G. (1957). Visceral leishmaniasis in a dog imported into the United States.—*Amer. J. trop. Med. Hyg.* 6, 227-231. 3232

A 3-year-old dog was exported from Greece to Germany when it became ill 4 weeks after arrival, nervous distemper being diagnosed. The animal made an apparent recovery after 6 weeks and was exported to the U.S.A. where, on arrival, nervous symptoms were observed. On clinical examination 2½ months later there was a yellowish nasal discharge, hyperkeratosis of the nostrils, multiple bursitis, oedema of the right hock joint and enlargement of the mandibular, pharyngeal, inguinal and popliteal lymph nodes; the temperature was 102.5°F. Leptomonad forms were demonstrated in bone marrow biopsy specimens. Histopathological findings included cellular infiltration of the kidneys and liver, lymphocytic and reticulo-endothelial cell hyperplasia in the lymph nodes which contained considerable haemosiderin. The bone marrow contained large numbers of megakaryocytes and proliferating reticulo-endothelial cells from which *Leishmania* were isolated. Another case in a dog (also imported from Greece) was reported by Thomson *et al.* (*Amer. J. trop. Med. Hyg.* 4, 18).—T.E.G.R.

DORAN, D. J. (1957). Studies on trichomonads.

I. The metabolism of *Trichomonas foetus* and trichomonads from the nasal cavity and cecum of swine.—*J. Prot.* 4, 182-190. [Abst. from author's summary.] 3233

The metabolism of *Trichomonas foetus* (strain BP-1) and of trichomonads from the nasal cavity and caecum of pigs was studied manometrically under similar experimental conditions. At pH 6.4, quantitative and qualitative differences were observed. D. believes that the caecal trichomonad is different from *Tr. foetus* and the nasal trichomonad of pigs. The relationship between the nasal trichomonad and *Tr. foetus* remains in doubt.

McLOUGHLIN, D. K. (1957). Age of host and route of administration as factors influencing the susceptibility of turkeys to *Trichomonas gallinarum*.—*J. Parasit.* 43, 321. [Only abst. given. Abst. from abst.] 3234

Older turkeys were less susceptible than younger ones to *Tr. gallinarum*. Consequently, for experimental purposes, rectal inoculation of these organisms may be more certain to produce an infection in birds 9 weeks of age than inoculation by the oral route.

STABLER, R. M. (1957). The effect of furazolidone on pigeon trichomoniasis due to *Trichomonas gallinae*.—*J. Parasit.* 43, 280-282. [Author's summary modified.] 3235

Furazolidone was capable of removing *Tr. gallinae* from naturally infected pigeons. Effective therapeutic levels, however, were too generally accompanied by considerable weight loss and convulsions, indicating severe toxicity, frequently ending in death. Dosages which were tolerated with mild or no symptoms were usually ineffective in removing *Tr. gallinae* from chronic carriers. When a highly virulent strain of *Tr. gallinae* was given to 9 non-immune pigeons, furazolidone at a generally tolerated level was found capable of preventing death due to trichomoniasis in 7 of them. One of the 7 subsequently died of drug toxicity. The drug was unsatisfactory for radical cure of infection with *Tr. gallinae*, however, as only 1 of the 9 birds became negative. Furthermore, the trichomonads from 4 of the surviving positive pigeons were given to 2 clean birds, which died on the 4th and 6th days. One positive survivor, mated to a positive cock, has successfully produced several sets of squabs. The drug did not therefore adversely affect fertility, egg production, or hatchability.

TAYLOR, A. E. R. (1957). The effect of par-aminobenzoic acid, parahydroxybenzoic acid and riboflavin on *Plasmodium gallinaceum* in chicks.—*Trans. R. Soc. trop. Med. Hyg.* 51, 241-247. [Author's summary modified.] 3236

Pl. gallinaceum grew at a subnormal rate in chicks fed a purified basal diet deficient in *p*-aminobenzoic acid and *p*-hydroxybenzoic acid. The addition of either acid to the diet in low concentrations (0.005%) increased the parasitaemia. Higher concentrations (0.1-0.5%) of *p*-aminobenzoic acid resulted in an infection lower than that of the chicks fed the basal diet, whereas high concentrations of *p*-hydroxybenzoic acid had no suppressive effect. *p*-hydroxybenzoic acid in low or high conc. antagonized the suppressive effect of high concentrations of *p*-aminobenzoic acid. Chicks fed a diet deficient in riboflavin developed a markedly lower parasitaemia than did those fed a diet rich in the vitamin. These experiments indicate that small amounts of riboflavin, *p*-aminobenzoic acid and *p*-hydroxybenzoic acid are required in the diet of chicks to allow *Pl. gallinaceum* to develop normally. Large amounts of *p*-aminobenzoic acid are inhibitory, possibly because they interfere with the utilization of *p*-hydroxybenzoic acid.

JACOBS, H. R. (1957). **Effect of ornithosis on experimental fowl malaria.**—*Proc. Soc. exp. Biol., N.Y.* **95**, 372-373. [Author's summary modified.] **3237**

Ducklings infected with psittacosis 6 to 14 days before a challenge dose of *Plasmodium lophurae* were highly resistant to the challenge. The resistance was associated with increase of the reticulo-endothelial elements in the enlarged liver and spleen resulting from the psittacosis infection.

COLEMAN, R. M. & VON BRAND, T. (1957). **Blood pyruvate levels of rats during hemoprotozoan infections.**—*J. Parasit.* **43**, 263-270. [Authors' summary modified.] **3238**

The blood keto acid content in rats infected with pathogenic trypanosomes is essentially normal even in heavy infections (at least up to 1.3 thousand million/ml.) with species producing pyruvic acid at a rapid rate. A somewhat increased level may, however, occur in the terminal stages of these infections. The blood keto acid level of rats infected with *Plasmodium berghei* is definitely increased. This is probably not directly related to the metabolism of the parasites, but rather due to a metabolic disturbance of the host.

MARKOV, A. A. & ABRAMOV, I. V. (1957). **[Features of the cycle of *Babesia bovis* in *Rhipicephalus bursa*.]**—*Veterinariya, Moscow* **34**, No. 3, pp. 27-30. [In Russian.] **3239**

During 6 years 13 generations of *R. bursa* were reared in the lab., being fed on rabbits, which are not susceptible to *B. ovis*. The original ticks were infected with *B. ovis*, and ticks of the 11th generation were still infective for sheep. Clavate forms of *Babesia* were identified in smears of eggs from all generations. Usually there were one or two such forms in each microscopic field, but in one egg 718 were counted. Such heavy infestations often killed the egg. Since under natural conditions there is one generation of the tick a year, it was considered possible that *B. ovis* (and perhaps other infective agents, e.g. *Rickettsia burneti*) could survive at least 14 years in the tick.—R.M.

TSUR-TCHERNOMORETZ, I., NEITZ, W. O. & POLS, J. W. (1957). **[The development of Koch bodies of *Theileria parva* in tissue culture.]**—*Refuah Vet.* **14**, In Hebrew pp. 5-12. In English p. 53. [English summary modified.] **3240**

Koch bodies of *Th. parva* were maintained in tissue culture for 15 days, while development

continued during the first ten days. Cell proliferation persisted for 20 days in tissue cultures even when penicillin, streptomycin, aureomycin and plasmoquin had been added.

KARDEVÁN, A. & KAPP, P. (1957). **A toxoplasmosis előfordulására irányuló vizsgálatok háziállatainkban. Hazai toxoplasma-törzs izolálása. [Toxoplasmosis in domestic animals in Hungary.]**—*Mag. állator. Lapja* **12**, 17-22. [In Hungarian, English and Russian summaries. Abst. from English summary.] **3241**

Focal encephalitis due to toxoplasmosis was found in 2 out of 20 dogs which had shown nervous symptoms before death. In one dog inclusion bodies were seen in the epithelial cells of the respiratory tract; it is considered that the toxoplasmosis developed as a result of distemper. Toxoplasmosis was also diagnosed in a cat and a rabbit.—M.G.G.

GOLDMAN, M. (1957). **Staining *Toxoplasma gondii* with fluorescein-labelled antibody. I. The reaction in smears of peritoneal exudate.**—*J. exp. Med.* **105**, 549-556. **3242**

GOLDMAN, M. (1957). **Staining *Toxoplasma gondii* with fluorescein-labelled antibody. II. A new serologic test for antibodies to *Toxoplasma* based upon inhibition of specific staining.**—*Ibid.* 557-573. [Author's summaries modified.] **3243**

I. Antitoxoplasma globulin labelled with fluorescein was used to stain *T. gondii* in smears of peritoneal exudate. It appears that the staining was due to an antigen-antibody reaction at the cellular level. Methods are described for handling the organisms so that they can be stained over a period of several months. Some general characteristics of the antigen system are described.

II. A new serological test for antibodies to *T. gondii* is described, which is based on inhibition of specific staining with fluorescent antibody. A mixture of the test serum and known fluorescein-labelled antiserum is added to a dried smear of toxoplasms for 1 hour at 37°C. The smear is then rinsed and examined with a fluorescence microscope. Reduced brilliance indicates the presence of antibody. Results paralleled closely those of the methylene blue dye test. On the other hand, the c.f. test yielded far fewer positive results. The specificity of the test was studied by comparing it with dye test results and clinical histories in human patients, and by testing the sera of animals immunized with a variety of antigens. No cross-reactions

were obtained in the latter group. Some advantages and disadvantages of the test are discussed.

HAKIOĞLU, F. (1956). *Toxoplasma* Giroud B. 12 ile farelerde tecrübi enfeksiyon ve suşun muhafazası. [Experimental infection and maintenance in mice of *Toxoplasma* Giroud, Strain B12.] — *Türk. vet. Hekim. dern. Derg.* 26, 3202-3217. [In Turkish. Abst. from German summary.] 3244

Strain B₁₂ of *Toxoplasma*, obtained from the Institut Pasteur, Paris, was maintained for 28 passages in mice by intranasal and also by intraperitoneal infection. *Toxoplasms* were

See also abst. 3473 (report, Bechuanaland).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

ANON. (1957). *Developments at Pirbright.* — *Vet. Rec.* 69, 635-637 & 641. 3246

Demonstrations held at the Pirbright Research Institute to mark the completion of the development scheme included:— work on the systematic world survey and classification of F. & M. disease virus, of which 7 types are now known; a genetic analysis of the various factors affecting the host-virus relationships; cultures of the virus on a scale suitable for vaccine production; and techniques used in testing vaccines for safety and protective power using very young white mice.—A. ACKROYD.

TYULENKOVA, M. F. (1957). [Report of a meeting of the Scientific-Technical Council of the U.S.S.R. Ministry of Agriculture, on foot and mouth disease.] — *Veterinariya, Moscow* 34, No. 4. pp. 90-92. [In Russian.] 3247

In the U.S.S.R. foot and mouth disease is controlled by general sanitary and quarantine measures, combined with vaccination of cattle in a wide area around infected premises. The main problem discussed at the meeting was improvement in the methods of preparing vaccines and in their immunogenic properties. There was mention of an avirulent vaccine from F. & M. virus adapted to rabbits or g. pigs, and of experimentally induced tumours in cattle as a source of virus.—R.M.

VERGE, J., PARAF, A., DHENNIN, LOUIS, DHENNIN, LÉONE & ASSO, J. (1957). Adaptation du virus aphteux au lapin nouveau-né. [Adaptation of foot and mouth disease virus to the newborn rabbit.] — *C. R. Acad. Sci. Paris* 244, 3098-3100. 3248

Strains of the three main types of virus

demonstrated in the liver, spleen and urinary bladder.—M.G.G.

BAKER, J. R. (1957). A new vector of *Haemoproteus columbae* in England.—*J. Prot.* 4, 204-208. [Author's summary slightly modified.] 3245

Haemoproteus columbae of English wood pigeons (*Columba palumbus*) was found to undergo sporogony in the "louse-fly," *Ornithomyia avicularia*. It is suggested that this insect is a vector of *H. columbae*, in spite of the failure of six attempts to transmit the haemosporidian to uninfected domestic pigeons by the bite, or injection, of infected *O. avicularia*.

were directly adapted to rabbits less than 9 days old. Intraperitoneal inoculation was employed: it caused paralysis followed by death about 48 hours after inoculation. After 50 passages there was no loss of virulence of the virus for cattle and g. pigs.—R.M.

KÖTSCHKE, W. (1957). Zur Ursache der Lähmungen bei mit dem neurotrop modifizierten Standard-A-Maul-und-Klauenseuche-Virus infizierten Mäusen. [Cause of paralysis in mice infected with the neurotropic modification of type A foot and mouth disease virus.] — *Arch. exp. VetMed.* 11, 142-145. 3249

The paralysis is attributed to degeneration of the ganglion cells in the motor areas of the cerebral cortex. At no stage of the infection could virus be demonstrated in the skeletal musculature. Viraemia developed one hour after the injection of virus and persisted throughout the course of the infection.—M.G.G.

CARTWRIGHT, S. F., PAY, T. W. F. & HENDERSON, W. M. (1957). Multiplication of the virus of foot-and-mouth disease in culture.—*J. gen. Microbiol.* 16, 730-748. [Authors' summary modified.] 3250

The infectivity curve of F. & M. disease virus was studied in cultures of suspended trypanized ox-tongue epithelial cells. By this technique a known number of cells could be exposed to a known amount of virus. Adsorption of the virus by the cells was rapid and, except with low concentrations of virus, was complete in 15-30 min. A latent period of about 2½ hours followed during which the virus was closely associated with the cells, was protected from the neutralizing action of antiserum, and

was not readily extractable but retained its infectivity. At the end of the latent period the infected cells became producers of virus at a rate estimated to be between 10^2 and 10^3 ID₅₀ per 15 min. After about 12 hours the infectivity of the culture declined because of death of the virus-producing cells and thermal inactivation of the virus.

GUILLOT, P. (1957). Culture du virus de la fièvre aphteuse (type O) en cultures de tissus de reins de porc. I. Étude de l'infectivité. [**Propagation of foot and mouth disease virus in cultures of pig kidney tissue. I. Infectivity.**]—*Ann. Inst. Pasteur* **93**, 81-90. [English summary modified.] **3251**

The infective titre of F. & M. disease virus in cultures of pig kidney tissue depends on different physical and chemical factors. Those without any marked influence are: (1) the age of the culture, *i.e.*, the number of cells (the propagation titre depends on the ratio of cell numbers to size of inoculum), and (2) the size of the inoculum, within rather large limits. On the other hand, the presence of pig serum raises the infective titre, the B vitamins appear to have the same effect, and lowering of the pH appears to decrease the infective titre.

WESSLÉN, T. & DINTER, Z. (1957). The inactivation of foot-and-mouth disease virus by formalin.—*Arch. ges. Virusforsch.* **7**, 394-402. [In English. Authors' summary modified.] **3252**

Inactivation of F. & M. disease virus after the addition of formalin was studied by estimating the residual virus activity in tissue culture titrations at various intervals during the inactivation period. The inactivation rate was slower at pH 7 than at pH 9, because even without formalin there is a rapid decrease of activity at pH 9.

KOJNOK, J. (1957). Az anyatej szerepe a szopós malacok Aujeszky-féle betegsége terjesztésében. [**Transmission of Aujeszky's disease to piglets by sows' milk.**]—*Mag. állator. Lapja* **12**, 23-24. [In Hungarian. English and Russian summaries. Abst. from English summary.] **3253**

The piglets of 15 sows developed Aujeszky's disease during the first 34 days of life, and half of them died. Aujeszky's virus was demonstrated in the milk of 6 sows and in the brain and stomach contents of 2 piglets. A few sows had a transient loss of appetite, but the others showed no symptoms.—M.G.G.

REMLINGER, P. (1956). Le colloque ou symposium antirabique lyonnais. [**Anti-rabies symposium at Lyons, France.**]—*Arch. Inst. Pasteur Algér.* **34**, 345-348. **3254**

This brief account of the symposium includes the unanimously approved conclusions of two reports—on the use of rabies serum; and on the respective merits and possibilities of the Pasteur and the modified virus vaccines (*e.g.* Flury and Kellev) and the need for further investigation. A list of papers submitted is also included.—T.E.G.R.

GIACOSA, A. M. (1955). La prueba de fijación de complemento hemolítico en rabia. Diagnostico a partir del cerebro sospechoso. [**Complement fixation in diagnosis of rabies.**]—*Rev. Med. vet., B. Aires.* **37**, 263-275. [English and French summaries.] **3255**

A specific avirulent c.f. antigen was prepared from infected brain tissue. The c.f. test was carried out with 45 samples of brain tissue and the results compared with those of biological and histopathological examination. No anti-complementary effects were observed. Decomposition of the brain tissue or storage in glycerol and saline at room temp. for 6 days did not affect the antigenic properties.—T.E.G.R.

PIRINGER, W. (1957). Präventive Schutzimpfung der Hunde gegen Lyssa. [**Preventive vaccination of dogs against rabies.**]—*Wien. tierärztl. Mschr.* **44**, 259-264. [English, French and Italian summaries.] **3256**

Vaccination of dogs against rabies in Colombia has resulted in a lower incidence of the disease in human beings—46 fatal cases in 1955, compared with 58 in 1954 and 75 in 1953.

—M.G.G.

SKURSKAYA, M. G. (1956). [**Biological properties of rabies fixed virus.**]—*Trud. mosk. vet. Akad.* **12**, pp. 3-8. [In Russian.] **3257**

Rabbits, white mice, g. pigs, sheep and goats were equally susceptible to intracerebral injection of fixed rabies virus. Intramuscular infection of rabbits and g. pigs gave inconsistent results. Mice were the most susceptible to subcutaneous infection; only a few g. pigs fell sick; rabbits and sheep were unaffected. But when the virus was mixed with horse semen and injected s/c, the proportion of sick and dead animals rose considerably.—M.G.G.

BAKOS, K. & BRAG, S. (1957). Untersuchungen über Ziegenpocken in Schweden. [**Studies of goat pox in Sweden.**]—*Nord.*

VetMed, **9**, 431-449. [In German. English and Swedish summaries. English summary modified.] **3258**

The first outbreak of goat pox in Sweden is described. Although the disease was highly contagious it was mild. Lesions were most common on the lips and oral mucous membrane but were also seen on the skin of the udder and teats. Sheep in contact with the goats did not develop the disease. Poxlike eruptions occurred on the hands of farm personnel who handled the goats. The disease was transmitted experimentally to goats, sheep, a reindeer, and on occasion to rabbits, but not to g. pigs, mice, pigs, fowls and calves. The infectious agent passed a Berkefeld V filter but only occasionally a Berkefeld N filter. Elementary bodies were demonstrable in exudate from vesicles on infected goats. Attempts to cultivate the virus in eggs and in tissue culture were unsuccessful. Most of the experimentally infected goats were immune 24-153 days after infection. Immunity was not, however, always complete. Cross-immunization and infection experiments showed that the goat-pox virus was not biologically related to either vaccinia or the contagious pustular dermatitis virus. In neutralization tests the virus was neutralized by homologous serum only; goat-pox serum did not neutralize vaccinia or c.p.d. virus. Elementary bodies were agglutinated by homologous antiserum but not by vaccinia or c.p.d. antiserum. Complement-fixing antibodies were demonstrable against homologous virus only and only in serum from hyperimmunized animals.

RANDALL, C. C. & TODD, W. M. (1957). A method of isolating normal and fowlpox infected chorioallantoic epithelium. — *Proc. Soc. exp. Biol.*, N.Y. **95**, 229-231. [Authors' summary modified.] **3259**

A method which involved shaking in cold saline with glass beads, sedimentation, freezing and freeze-drying is described for isolating chorioallantoic epithelium from normal and fowl pox infected embryonated hen eggs.

KÖHLER, H. & SCHWÖBEL, W. (1956). Über die Vermehrung von Hühnerpockenvirus in der Gewebekultur. [Propagation of fowl pox virus in tissue culture.] — *Zbl. Bakt. I. (Orig.)* **166**, 454-461. [English, French and Russian summaries.] **3260**

Cultures of chick embryo fibroblast cells prepared by the method described by Dulbecco (1952) were inoculated with an excess of fowl pox virus. Seven days later cell necrosis was complete. There was a distinct parallelism between the increase in virus titre and in cytopathogenic

effect. Virus was not demonstrable until the 5th day. The virus yield remained fairly constant in the course of 6 serial passages in fibroblast cultures, the titres being similar to those in infected chick embryos.—M.G.G.

FRANCIS, J. (1956). Methods of infection and immunity in fowl pox.—*Aust. vet. J.* **32**, 216-220. **3261**

Some of the points made by F. were: (1) Fowl pox virus multiplies in lung after i/d inoculation; (2) a high proportion of birds may become immune without developing visible lesions; (3) it was confirmed that in the absence of mosquitoes the experimental disease does not spread readily except by direct contact.

—K. G. JOHNSTON.

TYRRELL, D. A. J. & VALENTINE, R. C. (1957). The assay of influenza virus particles by haemagglutination and electron microscopy. — *J. gen. Microbiol.* **16**, 668-675. [Authors' summary modified.] **3262**

A comparison of the "absolute assay" haemagglutination method of counting virus particles [see *V.B.* **24**, 3522] with direct counts under the electron microscope revealed that the indirect method underestimated the total count by a factor of about 10. Details of technique and possible sources of error in making counts are discussed.

HOYLE, L. & FINTER, N. B. (1957). The use of influenza virus labelled with radiosulphur in studies of the early stages of the interaction of virus with the host cell.—*J. Hyg., Camb.* **55**, 290-297. [Authors' summary modified.] **3263**

Influenza virus was labelled with ^{35}S by cultivation in fertile eggs into which radioactive methionine had been introduced. After fractionation of the virus with ether the nucleoprotein soluble antigen fraction and the haemagglutinin each contained 15% of the ^{35}S , while the denatured envelope protein contained 70%. When labelled virus was introduced as a primary inoculum in fertile eggs and extracts of the chorioallantoic membrane were made $1\frac{1}{2}$ hours later, practically none of the ^{35}S was present as infective virus. Some 10-20% was recovered as aminoacid, while the remainder was present as non-infective material of particle size similar to that of the original virus. It is suggested that on entry into the cell the virus nucleoprotein is hydrolysed with the release of aminoacid and free nucleic acid, while the protein and haemagglutinin of the virus envelope remain intact on the cell surface.

CHAMBERLAIN, R. W. & SUDIA, W. D. (1957). **Multiplication of eastern equine encephalitis virus in mosquitoes following intrathoracic inoculation.**—*Proc. Soc. exp. Biol., N.Y.* **95**, 261-262. [Authors' summary modified.] **3264**

Known amounts of the virus were inoculated into the thorax of *Aedes triseriatus* mosquitoes. Individual mosquitoes were ground and tested quantitatively for virus content after various periods of incubation. Approximately a tenfold increase in virus occurred every 8 hours until maximum virus levels were attained.

TRAUB, E. & KESTING, F. (1956). Ueber die Ausscheidung des E.E.E.-Virus und das gelegentliche Vorkommen von Kontaktinfektionen bestimmter Art bei Mäusen. [**Excretion of Eastern equine encephalitis virus by mice in relation to infection by contact.**]—*Zbl. Bakt. I. (Orig.)* **166**, 462-475. [English, French and Russian summaries.] **3265**

Eastern equine encephalitis virus was frequently demonstrated in the nasal secretions of experimentally infected mice, less often in the faeces, but never in the urine. Mice over 3 weeks old in contact with infected mice did not develop the infection, but did after eating mice which had died from the disease. Infected mothers did not transmit infection to their unweaned young. On several occasions, however, the infection passed from experimentally infected young to their mothers but not to their uninoculated litter mates.—M.G.G.

NIT, Y., FENDRICH, J. & GOLDWASSER, R. (1957). **Some aspects of the pathogenesis of western equine encephalomyelitis virus in the chick embryo.**—*J. infect. Dis.* **100**, 207-211. [Abst. from authors' summary.] **3266**

The virus multiplied in various tissues of the chick embryo, but chiefly in the vascular endothelium, where the latent period was shortest. The course of the infection after inoculation by various routes is described.

RANDALL, C. C. (1957). **Adaptation of equine abortion virus to HeLa cells.**—*Proc. Soc. exp. Biol., N.Y.* **95**, 508-510. [Author's summary modified.] **3267**

R. reported the adaptation of equine abortion virus to HeLa cells through 35 serial passages. Characteristic intranuclear inclusions occurred in cultures selected at random. The agent fixed complement in significant dilutions and remained pathogenic for hamsters.

I. BAZUILEV, P. M. & ARZIANI, S. G. (1952). [**Aluminium hydroxide tissue vaccine against rinderpest.**]—*Trud. gosud. nauchno-kontrol.*

Inst. vet. Preparatov. **3**, 102-111. [In Russian. Translation of authors' summary.] **3268**

II. BAZUILEV, P. M. & ARZIANI, S. G. (1956). [**Storage life of aluminium hydroxide tissue vaccine against rinderpest, and the duration of immunity conferred by it.**]—*Trud. gosud. nauchno-kontrol Inst. po Vetpreparatam.* **6**, 83-92. [In Russian.] **3269**

I. Reduction of the dose of conventional tissue vaccine to below 0.05 ml./kg. body wt. did not confer a sufficiently strong immunity in cattle. Doses of 0.005 ml./kg. were devoid of immunogenic properties. Vaccine prepared from liver tissue had weak immunogenic properties, and only at double dosage. Muscle and blood could not be used for the preparation of tissue vaccine. Aluminium hydroxide tissue vaccine in doses of 2 ml. an animal provided an immunity to rinderpest that was no weaker than that provided by the usual doses of ordinary tissue vaccine. Under normal conditions the storage life of aluminium hydroxide vaccine was not less than 12 months. Vaccinated cattle were immune for at least 8½ months after vaccination. Because only spleen, lymph nodes, and an equal weight of lung tissue from an infected ox could be used in the vaccine, reduction of the dose to 2 ml. an animal by adding aluminium hydroxide led to a tenfold reduction in the cost of vaccine production.

II. Experiments with several batches of aluminium hydroxide tissue vaccine revealed that its storage life was 18 months and that a dose of 2 ml. provided 6-8 months' immunity in adult cattle. Immunity in calves vaccinated when under a year old lasted for only 3½-4 months. Youngstock in areas threatened with rinderpest should be vaccinated when 30 days old and again 15-20 days later. Re-vaccination by single inoculation should be performed every 3-4 months until the stock are 12 months old. Cows vaccinated during the last 3 months of pregnancy should be re-vaccinated after 3-4 months.—R.M.

BRANDLY, C. A. & McCLURKIN, A. W. (1956). **Epidemic diarrheal disease of viral origin of newborn calves.**—*Ann. N. Y. Acad. Sci.* **66**, 181-185. **3270**

A causal agent of pneumo-enteritis prevalent among new-born calves in Wisconsin was characterized as a virus by serial transmission in calves, using a bacteria-free inoculum, and by serial passage in the gravid uterus of mice and g. pigs. The agent traversed filters of 50-80 mμ pore size. It would only grow in the presence of living cells, it resisted certain antibiotics, and a protective substance was demonstrated in

colostral whey. Electron microscopy revealed a spherical particle of 17 $m\mu$ that was not present in normal lung material.

Resistance to infection increases markedly during the second and third days of life, and exposure after 48 hours of age seldom resulted in the acute fatal disease. Calves were protected when given colostrum whey at least 2 hours before exposure to an aerosol of the purified virus, but not when it was given after exposure. A virus-inactivating substance in the whey was not demonstrable *in vitro*. The virus was demonstrated in the lungs of apparently healthy cattle. This suggests that healthy animals may act as a reservoir, and may account for the increased incidence of the disease in winter. Exposure of calves to a temp. of 20° to 30° F. did not increase their susceptibility. The use of controls indicated that healthy calves deprived of colostrum can be obtained. [See also *V.B.* 26, 2056—2058.]—M.G.G.

BLOOD, D. C., HUTCHINS, D. R., JUBB, K. V., WHITTEM, J. H. & LITTLEJOHNS, I. (1957). "Mucosal disease" of cattle in Australia. — *Aust. vet. J.* 33, 75-76. 3271

A report of the occurrence in New South Wales of mucosal disease, clinically and pathologically identical with that described in the U.S.A. by Ramsey & Chivers [*V.B.* 24, 3272]. —K. G. JOHNSTON.

BROWN, R. G. & CABASSO, V. J. (1957). Studies on infectious bovine rhinotracheitis (IBR) II. Experimental transmission to cattle.—*Vet. Med.* 52, 321-326. [Authors' summary modified.] 3272

Infectious bovine rhinotracheitis was successfully transmitted to susceptible cattle when virus grown in tissue culture was administered intratracheally, conjunctivally, or intranasally. When finely divided virus was sprayed intranasally, thermal responses were most consistent and uniform. The experimental disease was generally mild and complete recovery the rule. With intramuscular inoculation of large doses of virus, reaction was minimal or absent, but animals so injected developed appreciable levels of antibodies and resisted a severe form of challenge. The implications of this latter finding, with regard to the immunization in the field, were discussed.

ESTRELLA E SILVA, F. (1956). Língua azul ou febre catarral dos ovinos (blue-tongue). [Bluetongue in Portugal.]—*Rev. Cienc. vet., Lisboa* 51, 191-231. [English and French summaries.] 3273

The disease was diagnosed clinically and

confirmed by lab. tests in 50 sheep and 3 cattle. Symptoms and P.M. findings are described. Medicinal treatment was ineffective, but vaccination gave satisfactory results and caused no ill effects. The vaccine was first tested on 50 animals—rams, pregnant ewes, and lambs—keeping another batch of 50 unvaccinated as controls. A total of 686 was vaccinated. The evaluation of the carcasses at meat inspection, the disposal of infected meat and the possible source of the disease are discussed.—T.E.G.R.

DE GROODT, J. A. & GARNER, E. (1957). Disease resistance in garbage fed swine.—*Vet. Med.* 52, 283-284. 3274

In a mixed drove of pigs fed raw swill and maintained under most unfavourable conditions, immunization of piglets at 6 weeks of age against swine fever with 2 ml. of a modified live virus vaccine and 15 ml. of swine fever antiserum instead of with virulent virus and antiserum has resulted in the abolition of the 20% post-vaccinal death losses, and in improvement in their general health as shown by better weight gains and reduction in the incidence of acute infectious diseases and has proved effective in protecting them against the disease.—A. ACKROYD.

DETRAY, D. E. (1957). African swine fever in wart hogs (*Phacochoerus aethiopicus*).—*J. Amer. vet. med. Ass.* 130, 537-540. [Author's summary modified.] 3275

African swine fever was not readily transmitted to domestic pigs by experimental contact with wart-hogs known to be infected. However, one apparently successful transmission by this method occurred. African swine fever virus was recovered from a wart-hog 54 days after it was exposed by inoculation. Previously, 17 days was the longest period confirmed for a wart hog to act as a carrier of this virus. Protection tests with wart hog serum in domestic pigs yielded inconclusive results.

MARKOVITS, P. & BIRÓ, J. (1956). Kísérletek a sertéspestisvírus elszaporítására szövettanyészetben. II. Összehasonlító vizsgálatok a "Phylaxia" és a "Washington" jelzésű vírustörzsszel. [Cultivation of swine fever virus in tissue culture. II. Comparative studies with "Phylaxia" and "Washington" strains.]—*Mag. állator. Lapja* 11, 357-360. [In Hungarian. English and Russian summaries. Abst. from English summary.] 3276

The Washington strain underwent 50 serial passages in cultures of mixed pig embryonic skin, lung and spleen tissue without loss of infectivity. But the infectivity of the Phylaxia strain

declined after the 15th passage and was completely lost by the 30th passage. Interpolation of a passage in a pig, however, enabled infectivity to be maintained for a further 35 passages in tissue culture.—M.G.G.

SIMONYI, E. & REGÖS, G. (1956). **Investigation on the pathological lesions in pigs vaccinated with crystal violet swine fever vaccine.**—*Acta vet. hung.* **6**, 49-54. [In English. Russian summary.] **3277**

Of 67 pigs inoculated with crystal violet vaccine 31 had macroscopic lesions suggestive of swine fever at P.M. examination 5-24 days later, though they were clinically normal when killed. Attempts to transmit virus from the blood of 2 of these pigs gave a negative result. Similar lesions were found after inoculation of formolized (0.3%) virus, but not after a single injection of a crystal violet vaccine made with the blood of normal pigs. Uninoculated controls had no lesions, and with one exception were susceptible to challenge with virulent swine fever virus. Histological examination (on 2 of the affected pigs only) revealed hyperaemia and scattered haemorrhages without degenerative changes. It was concluded that the lesions resulted from inoculation of inactivated virus.—J. T. DONE.

I. STOYANOV, V., RASHEV, K. & VLAHOV, V. (1956). **[Method of obtaining swine fever immune serum by hyperimmunizing pigs with small doses of antigen.]**—*Sborn. nauch. Trud. vet. Inst. Minist. Zemed., Sofia* **6**, 39-46. [In Bulgarian. English and Russian summaries.] **3278**

II. KHRISTOV, I. & RASHEV, K. (1956). **[New method of immunization for obtaining swine fever immune serum from pigs.]**—*Ibid.* 47-54. [In Bulgarian. English and Russian summaries.] **3279**

I. Pigs weighing 120-150 kg., previously treated with virus plus serum, were hyperimmunized with 20, 30 and 50 ml. of infective blood, given at intervals of 3 days. Ten days after the final injection, 4 collections of blood were made at intervals of 2-3 days. The pigs were then re-immunized with injections of 30 and 40 ml. virus, 3 days apart, and after another pause were bled twice: this process was repeated 3 times. Each pig received a total of 380 ml. infective blood, compared with 1,700 ml. by the old method; the titre of the serum was the same as that obtained by the old method.

II. Success was claimed for the use of a tissue antigen (prepared from spleen, lymph nodes, liver, kidney of infected pigs), instead of infective blood, as an antigen for hyperimmuniz-

ing pigs for the production of immune serum. For this purpose alum and saponin were added to the tissue extract. It was stated that the local inflammation caused by the inoculation of this preparation stimulated immunogenesis.—R.M.

SEMERDZHIEV, B. & KHRISTOV, S. (1956). **[Immunization against swine fever with reduced doses of crystal violet vaccine.]**—*Sborn. nauch. Trud. vet. Inst. Minist. Zemed., Sofia* **6**, 17-24. [In Bulgarian. English and Russian summaries.] **3280**

The volume of crystal violet vaccine required to immunize could be reduced to 1 ml. for pigs up to 100 kg. body wt. and 2 ml. for heavier pigs, if a stimulant of the central nervous system (the authors used a special preparation of caffeine and sodium benzoate) was inoculated s/c with the vaccine, which was inoculated s/c in a different part of the body.—R.M.

HAELTERMAN, E. O. & HUTCHINGS, L. M. (1956). **Epidemic diarrheal disease of viral origin in newborn swine.**—*Ann. N. Y. Acad. Sci.* **66**, 186-190. [Authors' summary modified.] **3281**

Transmissible gastro-enteritis is the only primarily diarrhoeal disease of new-born pigs in which viral aetiology has been established. It is probably enzootic in all of the major pig-rearing areas of the U.S.A. It is characterized by a very short incubation period, vomiting, diarrhoea, rapid dehydration and very high mortality. In older pigs infection may be inapparent or it may produce watery diarrhoea, occasional vomiting and, rarely, prostration. Spontaneous recovery within a few days is usual in animals over 3 weeks old. Lesions are mild to severe inflammation of the gastro-intestinal tract and congestive and degenerative changes in the kidneys. The disease is serially transmissible by oral and nasal instillation of bacteria-free filtrates of faeces, gastro-intestinal tract, lungs, kidney, spleen, or blood serum. The intestinal tract usually has the highest concentration of virus. The virus is inactivated by heat at 56°C. for half an hour, by 0.5% phenol, 0.05% formalin, and by drying at room temp. for 10 days. It is not affected *in vitro* by penicillin or streptomycin. No other species has been shown to be susceptible to the virus. Some degree of immunity may be transmitted from previously infected sows to their young through the colostrum. *In vitro* neutralization of the virus by serum from recovered animals has been demonstrated. Injection of blood serum from repeatedly exposed pigs has failed to protect susceptible pigs.

LEE, K. M. (1956). **Propagation of transmissible gastroenteritis virus in tissue culture.**—*Ann. N. Y. Acad. Sci.* **66**, 191-195. [Author's summary modified.] **3282**

A strain of porcine transmissible gastroenteritis virus was maintained for 8 months in 28 serial transfers in pig's kidney epithelial cells. Tissue culture supernatant fluid was used as antigen for agglutinating complement absorption tests. With this antigen antibodies were detected after infection either with original virus or with tissue culture virus.

TONEVA, V. N. (1956). [**Enzootic pneumonia (influenza) of new-born and young pigs.**]—*Sborn. nauch. Trud. vet. Inst. Minist. Zemed., Sofia* **6**, 139-148. [In Bulgarian. English and Russian summaries.] **3283**

Material was examined from pigs on 10 Bulgarian farms where enzootic pneumonia occurred. Evidence of a virus, based on infection of rats and chick embryos, and haemagglutination tests, was found in material from 5 of the farms, but the virus was not identified.

—R.M.

CARTER, G. R. (1957). **A bacterin for use in swine herds affected with virus pneumonia.**—*Vet. Med.* **52**, 308-309. **3284**

A 3 ml. dose at 5-10 weeks of age and a second dose of 5 ml. after a week, of a killed vaccine prepared from freshly isolated encapsulated cultures of Types A and D *Pasturella septica*, the most important secondary invader in virus pneumonia of pigs, appears to be of real value in reducing the severity of this widespread disease.—A. ACKROYD.

GILLESPIE, J. H., BAKER, J. A. & POPPENSIEK, G. (1956). **Diarrhea in puppies caused by distemper virus.**—*Ann. N. Y. Acad. Sci.* **66**, 204-209. [Authors' summary modified.] **3285**

Diarrhoea and death were important features of experimental distemper in puppies, whose blood serum contained no neutralizing antibodies at 6-10 weeks of age and which came from distemper-free mothers. A less severe infection developed in their litter mates infected when 12-16 weeks old. The majority of puppies less than 12 weeks old and from mothers immune to distemper showed no signs of illness when given virus, but those over 12 weeks old developed illness of a severity similar to that in puppies from non-immunized mothers.

JUBB, K. V., SAUNDERS, L. Z. & COATES, H. V. (1957). **The intraocular lesions of canine distemper.**—*J. comp. Path.* **67**, 21-29. **3286**

In all except 2 of 25 dogs affected with

distemper there were to some extent degenerative changes in the retinal ganglion cells: perivascular cuffing and inclusion bodies were found in some cases. Intraocular lesions may be present either with or without brain lesions. If the brain is involved, there may be retrograde degeneration of the retinal ganglion cells *via* the optic nerve.—W. MANSI.

OTT, R. L., GORHAM, J. R. & FARRELL, R. K. (1957). **The effect of dilution of egg-adapted distemper virus on the immune response in ferrets and dogs.**—*N. Amer. Vet.* **38**, 219-222. [Authors' summary modified.] **3287**

Ferrets responded to an approximately five-fold greater dilution of live-virus distemper vaccine than dogs.

POLDING, J. B. & SIMPSON, R. M. (1957). **A possible immunological relationship between canine distemper and rinderpest.**—*Vet. Rec.* **69**, 582-584. [Authors' summary modified.] **3288**

A dog population which was constantly exposed to rinderpest infection through eating meat from infected carcasses was observed over the years to be curiously free from distemper. A group of 8 distemper-susceptible puppies was reared; 4 were injected with virulent rinderpest virus and after 25 days these and the remaining 4 were challenged with potent distemper virus. Those injected with rinderpest virus remained healthy; the others developed classical symptoms of distemper.

FENNER, F. (1957). **Myxomatosis in European rabbits. Evolutionary changes in an infectious disease.**—*Aust. J. Sci.* **19**, pp. P117-P122. **3289**

After very high initial kills (99.8% mortality) in the first outbreak the mortality fell to 90%. This change could be due to one or more of four factors, viz: (a) an increase in the genetic resistance of the rabbit population; (b) a decrease in the virulence of the virus; (c) the accumulation of immune individuals; (d) some environmental factor. These factors are reviewed and discussed in some detail and F. concludes that the first two factors and the interaction between them are responsible for the major evolutionary changes, while the latter two factors are relatively unimportant. The evolution of myxomatosis is still in progress and investigation of it continues.—W. R. SOBEY.

FENNER, F. & MARSHALL, I. D. (1957). **A comparison of the virulence for European rabbits (*Oryctolagus cuniculus*) of strains of myxoma virus recovered in the field in Australia,**

Europe and America.—*J. Hyg., Camb.* **55**, 149-191. [Authors' summary modified.] **3290**

Strains of myxoma virus associated with a case-mortality rate in wild rabbits of 90-95% can be distinguished from those with a rate of over 99% by a standardized virulence test in groups of 5 laboratory rabbits. The test, which mimics mosquito transmission, consists of i/d inoculation in one site of about 5 infective doses, and observation of the progress of clinical symptoms and fate of the rabbits. The mean survival time allows classification into one of four grades of virulence. Of the 92 strains which were compared, 6 were lab. strains, 62 were from Australia, 19 from Europe, 3 from S. America, and 2 from California. Eight types were described; 4 of them produced recognizably different pocks on the chorioallantois of chick embryos.

In Australia the repeatedly introduced standard lab. strain of virus has given place to a moderately virulent strain, which appears to be better adapted for survival than either the highly virulent lab. strain, or less virulent variants. Examination of these attenuated variant strains by pure clone methods revealed that the variability in symptomatology is not due to a mixture of strains, but to the differences in innate resistance of the host animals which are obscured by the overwhelming virulence of the highly virulent strains.

Only one introduction of a different strain of virus was made in Europe. All field strains recovered during the first two years after the introduction were of high virulence, but a few attenuated strains appeared in 1955, and they have since become widespread. One of them appears to be a relatively stable mixture of a highly virulent and a greatly attenuated strain.

FENNER, F., POOLE, W. E., MARSHALL, I. D. & DYCE, A. L. (1957). **Studies in the epidemiology of infectious myxomatosis of rabbits. VI. The experimental introduction of the European strain of myxoma virus into Australian wild rabbit populations.**—*J. Hyg., Camb.* **55**, 192-206. [Authors' summary modified.] **3291**

The primary lesions produced in rabbits by i/d inoculation of the virulent French strain of myxoma virus were clearly distinguishable from those produced by the standard laboratory strain or by attenuated Australian field strains. Based on this fact a screening test was developed which allowed classification of large numbers of strains into French or attenuated Australian types. The virulent French virus was introduced into the wild rabbit population at Lake Urana by inoculation of 242 rabbits over a period of 6 weeks,

the attenuated Australian strain having already been recovered there. A severe outbreak of myxomatosis occurred in which an estimated 70% of cases were caused by the French strain. However, the majority of samples obtained in the latter half of the outbreak were of the attenuated Australian type, and this was probably the only strain which survived the winter and caused an intense epizootic in the spring. A similar picture of early establishment of the artificially introduced French strain, and its subsequent replacement by the naturally occurring attenuated strain, was seen at two other study sites.

SMITH, C. E. G. & WESTGARTH, D. R. (1957). **The use of survival time in the analysis of neutralization tests for serum antibody surveys.**—*J. Hyg., Camb.* **55**, 224-238. [Authors' summary modified.] **3292**

An analytical method using survival time is described for neutralizing tests with the neurotropic viruses in mice. The method is simple, and gives consistent and comparable results, over a wide range of virus doses.

MAGLIONE, E. (1956). **Ricerche sulla pseudopeste aviare nel passero. Rapporti fra l'infezione pseudopestosa dei passeri e la pseudopeste dei polli. [Newcastle disease in sparrows. Relationship between the infection in sparrows and in fowls.]**—*Ann. Fac. Med. vet. Torino* **6**, 63-74. [English, French and German summaries.] **3293**

In a series of experiments it was observed that sparrows did not contract the disease by direct contact with infected chickens or from infected premises, nor did they act as carriers of virus. Some were artificially infected by i/m inoculation of virus and were infective for other sparrows but not for fowls. Sparrows contracting the disease from experimentally infected sparrows were not infective for chickens.

—T.E.G.R.

IWASAKI, K. (1954). **Tissue culture of the Newcastle disease virus.**—*Kitasato Arch.* **27**, 77-94. [In English. Author's conclusions modified.] **3294**

Newcastle disease virus was grown in shake tissue cultures on chorio-allantoic membrane cells. The relationship between the haemagglutinin and infectivity titres was studied together with the influences of individual differences among the embryonated eggs, the quantity of medium and tissue, and the pH on the production of haemagglutinin. Shake and roll tissue

cultures were compared, and the effects of shaking were investigated. Antiviral screening tests against N.D.V. were described, using the shake tissue culture method.

WINTERFIELD, R. W. & SEVOIAN, M. (1957).

Isolation of a causal agent of an avian hepatitis.—*Vet. Med.* **52**, 273-274. **3295**

P.M. examination of upwards of 80 pullets culled from a flock of 12,000 revealed degenerative foci in their livers. From these foci, an aetiological agent was isolated in 6-day-old chick embryos. It was sensitive to chlortetracycline, oxytetracycline, carbomycin, and dihydrostreptomycin. The agent resembled that described by Delaplane *et al.*, 1955 [*V.B.* **26**, 229], but the disease differed from the hepatitis described by Lukas, 1955 [*V.B.* **25**, 2647].—A. ACKROYD.

WESTWOOD, J. C. N., MACPHERSON, I. A. & TITMUSS, D. H. J. (1957). **Transformation of normal cells in tissue culture: its significance relative to malignancy and virus vaccine production.**—*Brit. J. exp. Path.* **38**, 138-154. [Authors' summary modified.] **3296**

Six lines of cells, derived from normal tissues of rabbits, monkeys and man, were serially cultivated for 180 days or more. One line, derived from monkey kidney tissue, consists of epithelial cells which have retained their original morphology and cultural characteristics, while the 5 others underwent transformation between 26 and 65 days after primary culture. The transformed cells are epithelial in character and resemble each other closely but are clearly distinguishable from the original cells. The origin and the significance of the transformations are discussed.

MORGAN, H. R. & BADER, J. P. (1957). **Latent viral infection of cells in tissue culture. IV. Latent infection of L cells with psittacosis virus.**—*J. exp. Med.* **106**, 39-44. [Authors' summary modified.] **3297**

L cells (a strain of mouse fibroblasts), maintained in a balanced solution of inorganic salts and glucose for 2 days or more, are rendered incapable of supporting the growth of psittacosis virus, though the virus invades such cells and is present intracellularly for as long as 3 days in a non-infective phase. The addition of an enriched medium to such a culture of cells at any time up to 4 days after infection results in the appearance of infective virus within these cells, which multiplies and is released from the cells, provided the entire period of exposure of such cells to the balanced soln. does not exceed 6 days, (after which the cells die). A latent

infection with psittacosis virus in a non-infective phase was established in a pure line of cells which possess properties of malignancy.

DE RUYCK, R. (1957). **Transmission du virus choriotope au canard adulte. [Transmission of human choriotropic virus to adult ducks.]**—*C. R. Acad. Sci. Paris* **244**, 2559-2560. **3298**

Strains of choriotropic virus isolated from chorioepithelioma and a hydatiform mole of human origin could be cultivated in duck embryos and chick embryos. Intramuscular inoculation of filtered amniotic fluid from infected duck embryos into 9 adult ducks, caused the death of the ducks after 4-6 months, from malignant reticulosis of the lungs.—R.M.

VALENTINE, R. C. & ISAACS, A. (1957). **The structure of viruses of the Newcastle disease-mumps-influenza (Myxovirus) group.**—*J. gen. Microbiol.* **16**, 680-685. [Authors' summary copied verbatim.] **3299**

Particles of influenza, mumps, fowl plague, Newcastle disease and Sendai viruses were adsorbed on electron microscope films and treated with acid, trypsin and ribonuclease. All of these viruses contained trypsin-resistant rings of ribonucleoprotein and with some strains these rings showed lines of staining which may indicate the arrangement of the nucleic acid.

McLIMANS, W. F., UNDERWOOD, G. E., SLATER, E. A., DAVIS, E. V. & SIEM, R. A. (1957). **Antiviral activity of dicarbonyls and related compounds in embryonated eggs.**—*J. Immunol.* **78**, 104-111. [Abst. from authors' summary.] **3300**

A variety of compounds containing a terminal α -ketoaldehyde or α -hydroxyaldehyde grouping showed marked activity against influenza A(PR-8) and Newcastle disease (NJ-KD) viruses in embryonated eggs. One of these compounds, β -ethoxy- α -ketobutyraldehyde hydrate ("Kethoxal") appeared to be at least as active as any of the other compounds.

MEIER, P. (1957). **Safety testing of poliomyelitis vaccine.**—*Science* **125**, 1067-1071. **3301**

A review of some aspects (considered important to scientists generally) of the programme of poliomyelitis vaccine safety testing.—T.E.G.R.

STOKER, M. G. P. (1957). **Q fever down the drain.**—*Brit. med. J.* Feb. 23rd, 425-427. **3302**

Five members of the staff of a laboratory working on Q fever, including vaccine produc-

tion, became infected. The source of the infection in 2 cases was traced to a blocked drain from a laboratory sink. Glassware, difficult to clean after sterilization, had been soaked overnight in 5% lysol before being cleaned at this sink. The most likely source of infection in the sludge which spread out on to the lab. floor when the blocked waste pipe was cut to clear it, was material containing lumps of egg yolk tissue which the lysol may have failed to penetrate. *Rickettsia burneti* was isolated from the sludge at the top of the drain but not from the trap at the bottom.—W.A.P.

YORK, C. J. & BAKER, J. A. (1956). *Miyagawanella bovis* infection in calves.—*Ann. N. Y. Acad. Sci.* **66**, 210-214. [Authors' summary modified.] **3303**

A virus was isolated from the faeces of over 60% of calves from dairy farms in New York and also from calves in Indiana, California, and Montana. It has the characteristics of a member of the psittacosis-lymphogranuloma group of viruses and has been provisionally designated *Miyagawanella bovis*. Experimental feeding of this agent to calves 4-9 months old produced no illness, but it could be recovered from the faeces for at least 6 months after infection. In newborn calves, diarrhoea and sometimes death occurred from feeding the virus, providing colostrum was withheld, or if colostrum was obtained from non-immune mothers. Colostrum from immune mothers prevented illness. Whether or not colostrum was fed, all the calves became carriers of the virus.

GIROUD, P. (1957). Observations et données expérimentales concernant les avortements chez l'homme et l'animal (rickettsioses, toxoplasmoses, néorickettsioses ou groupe psittacose). [Abortion in man and animals caused by infection with rickettsia organisms, toxoplasms and by viruses of the psittacosis-lymphogranuloma group.] — *Arch. Inst. Pasteur Tunis* **34**, 187-206. **3304**

In experimental work with rats infected with typhus designed to study the teratological effect of maternal infection during pregnancy G. had

little success in producing malformations in the progeny but observed that in many of the infected female rats the fetuses apparently died and became absorbed. Similar observations were made in rats infected during pregnancy with *Toxoplasma gondii* and in others infected with psittacosis virus.

Serological examination of sheep in flocks where abortions had occurred disclosed a number which gave positive reactions when tested against psittacosis-lymphogranuloma antigens.

Serological examination of cows which had aborted, and which were negative for brucellosis, indicated that some of them gave positive reactions with Q-fever antigen and some with psittacosis-lymphogranuloma antigens.

Serological tests made on a number of women who had aborted also indicated that some of these reacted positively to tests with psittacosis-lymphogranuloma antigens. In smears from the placentas of some of these cases elementary bodies were seen.

G. therefore suggests that abortions in cattle, goats and in women may be caused by viruses belonging to the psittacosis-lymphogranuloma group as Stamp and his colleagues have shown in the case of sheep.

GIROUD, P. & DUMAS, N. (1957). Test *in vitro* de séro-protection cytotoxique pour le diagnostic des rickettsioses et des affections proches. [Serum protection test in tissue cultures for the diagnosis of rickettsial and related infections.]—*C. R. Acad. Sci. Paris* **244**, 3100-3102. **3305**

The test was based on the cytotoxic action of rickettsia and "neorickettsia" on chick fibroblasts in tissue culture. The serum under test was mixed with the organism concerned for 30 min. at 37°C., and the mixture was added to a tissue culture. Results were read after contact for 24, 48 and 72 hours. It was stated that the results agreed with those of plate agglutination tests. Among the sera examined were some from ewes and cows which had aborted [see *V.B.* **26**, 1287 & 1986], but details of these are not given.—R.M.

See also absts. **3193** (salmonella bacteriophages); **3237** (effect of ornithosis on fowl malaria); **3378** (ornithosis and leptospirosis in fowls and turkeys); **3474** (report, Denmark).

IMMUNITY

BIER, O. G., FURTADO, R. & CISALPINO, E. (1957). A plate technic for the congrutative complement fixation test.—*Proc. Soc. exp. Biol., N.Y.* **95**, 335-339. [Authors' summary slightly modified.] **3306**

A plate technique is described for study of complement fixation with a congrutative indicator system. The reliability of the new technique was checked by parallel use of the tube technique in experiments with 6 different rabbit

anti-bovine serum albumin sera. The conglutination complement-fixation micro-technique also proved satisfactory for detection of antibodies against F. & M. disease viruses in g. pig hyperimmune sera, as well as for estimation of C-reactive protein in human sera.

SHARP, A. A. (1957). Relationship of complement to blood coagulation.—*Nature Lond.* **179**, 632-633. **3307**

Plasma factors involved in normal blood coagulation and complement activity may be similar, so that a defect in the former should be associated with an increase or decrease in the level of complement. No significant difference could be shown between the level of complement in normal serum and that obtained from cases of haemophilia, Christmas disease, factor V deficiency and following treatment with "Dindevan" (Factor VII deficient). The agglutination or lysis of platelets associated with coagulation did not fix or destroy the complement. S. concluded that antihæmophilic globulin, Christmas factor, factor V, and factor VII were unlikely to be related to complement.

—ALAN E. PIERCE.

SIMONSEN, M. (1957). The impact on the developing embryo and newborn animal of adult homologous cells.—*Acta path. microbiol. scand.* **40**, 480-500. [In English.] **3308**

When chick embryos were inoculated i/v, 3 days before hatching, with 5-10 mg. of a suspension of washed adult fowl spleen cells a severe hæmolytic anaemia developed after hatching and the chicks died during the first or second week. Washed heart blood cells from these chicks in the terminal stage gave a positive reaction in the direct Coombs test, whereas the donor cells were negative. P.M. examination of affected chicks killed on the 3rd day after hatching revealed extensive changes in spleen and bone marrow. From a microscopic study of the developing lesions, it was concluded that host antigens stimulated the cells of the transplant to multiply and produce antibody, the native cell population being thereby largely destroyed. The spleen-enlarging principle of adult fowl leucocytes was transferred serially from affected chicks to fresh chick embryos through 9 successive passages without significant loss of activity.—F.E.W.

LÁSZLÓ, F. (1957). Egyes oltóanyagok és olajtartalmú gyógyszerek befecskendezése nyomán keletkező kórszövettani elváltozások.

[Histological lesions caused by adjuvants in vaccines.]—*Mag. állator. Lapja* **12**, 28-31.

[In Hungarian. English and Russian summaries. Abst. from English summary.] **3309**

The inflammatory and necrotic changes caused by the adjuvants—saponin, aluminium hydroxide, medicinal charcoal, crystal violet, and oil are described.—M.G.G.

HOERLEIN, A. B. (1957). The influence of colostrum on antibody response in baby pigs.—*J. Immunol.* **78**, 112-117. [Author's summary modified.] **3310**

Comparisons were made between the antibody response to non-living antigens in piglets deprived of colostrum, receiving normal ("non-immune") colostrum, and receiving "immune" colostrum. Piglets under 8 weeks of age deprived of colostrum did not produce a measurable serological response. Piglets that received normal ("non-immune") colostrum responded to antigens when inoculated at 3 weeks of age. This response increased markedly up to 6 weeks of age. Passive transfer of antibodies through "immune" colostrum interfered with active antibody production between 3 and 6 weeks of age. The inoculation of sheep r.b.c. produced a response which differed in some respects from the antigen-antibody reactions studied. Part of this appears to be associated with intra-uterine sensitization to this complex antigen. Anaphylactic shock resulted from both active and passive ("immune" colostrum) sensitization.

GAJDUSEK, D. C. (1957). An 'auto-immune' reaction against human tissue antigens in certain chronic diseases.—*Nature, Lond.* **179**, 666-668. **3311**

The author has demonstrated the specific fixation of complement by finely homogenized human tissue antigens and sera from human patients suffering from a number of different diseases. Using human liver antigen and sera from 190 patients, high titre reactions were obtained from only the following pathological conditions: disseminated lupus erythematosus, lupoid hepatitis, types of chronic hepatitis, and macroglobulinaemia. Positive sera usually reacted in varying titre to liver, kidney and muscle antigens, and to rat kidney and liver antigens. The gamma globulin precipitated from a number of the positive sera possessed all the activity. In the macroglobulinaemic serum all the activity was associated with the macroglobulin. The interpretation of these results is discussed in

terms of the production of specific antibodies against certain components of human tissue, or the adventitious reactivity of serum globulins.

—ALAN E. PIERCE.

- PODLIACHOUK, L. & WROBLEWSKI, A. (1957). Étude de la substance A de la salive des porcs. [Study of A antigen in the saliva of pigs.]—*C. R. Acad. Sci. Paris* **244**, 2867-2869. **3312**

The amount of A antigen in the saliva was

See also absts. 3175 (TB.); 3183 (Past. septica); 3186 (E. coli); 3187 (Enterobacteriaceae); 3191 (allergic test in swine paratyphoid); 3192 (salmonellosis resistance factor); 3195-3206 (brucellosis); 3209 (bovine leptospirosis); 3242-3243 (toxoplasmosis); 3246-3252 (F. & M. disease); 3255-3257 (rabies); 3259-3261 (fowl pox); 3262-3263 (influenza); 3268-3269 (rinderpest); 3276-3280 (swine fever); 3284 (virus pneumonia bacterin); 3287 (distemper); 3288 (relationship between distemper and rinderpest); 3289-3291 (myxomatosis); 3292 (neutralization tests for serum antibody); 3296 (virus vaccines); 3297 (psittacosis); 3301 (safety testing of poliomyelitis vaccines).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

- WEBBER, L. G. (1957). Utilization and digestion of carbohydrates by the Australian sheep blowfly *Lucilia cuprina*.—*Aust. J. Zool.* **5**, 164-172. [Abst. from author's summary.] **3314**

The nutritional value of 30 carbohydrates, mainly mono- and oligosaccharides and sugar alcohols, was determined by longevity experiments on *L. cuprina*. Carbohydrates which maintain life for considerable periods are hydrolysed by enzymes present in the gut and salivary glands. Field experiments indicated that the important natural sources of carbohydrates were the honey dew of coccids and psyllids and the nectar of *Eucalyptus* blossoms.

- GRAHAM, N. P. H. (1957). Control of fly strike. The use of light surface sprays as a means of controlling body strike.—*Aust. vet. J.* **33**, 137-140. [Author's summary modified.] **3315**

In this trial, light surface spraying with dieldrin and aldrin was compared with saturating the fleece on the back in Merino sheep carrying fairly short fleece. Surface spraying was effective provided a sufficiently high concentration was used, surface spraying with 0.5-0.2% dieldrin being equivalent to "jetting" with 0.02% dieldrin. Even allowing for the smaller volume of emulsion applied by surface spraying, from 2 to 4 times as much insecticide had to be applied to equal the results obtained by "jetting". Moreover "jetting" was much quicker. Aldrin gave results inferior to dieldrin, 0.5% aldrin being only slightly better than 0.1% and inferior to 0.2% dieldrin.

- MEHROTRA, K. N. & SMALLMAN, B. N. (1957). Ovicidal action of organo-phosphorus insecticides.—*Nature, Lond.* **180**, 97-98. **3316**
- The acetylcholine content and the cholin-

esterase activity were determined in the developing eggs of *Musca domestica*. Acetylcholine was first detected 9 hours after oviposition and rose to nearly 500 µg./g. in normal eggs, but in eggs which had been exposed for one hour after oviposition to parathion acetate the content rose to 742 µg./g. The cholinesterase activity of the treated eggs was completely inhibited. These findings are considered to explain the delayed action of anticholinesterases on insect eggs.—M.G.G.

- GORDON, R. N. (1957). Serum sickness in dogs following injection of homologous serum.—*Aust. vet. J.* **33**, 147-148. **3313**

Serum shock in 2 dogs was successfully treated by i/v injection of adrenaline: one was a case of tick paralysis which had been treated with hyperimmune serum.

- KHAN, M. A. (1957). The effect of dietetic and glycemic factors in the attractiveness of white rats to mosquitoes.—*Canad. J. Zool.* **35**, 189-193. **3317**

Rats on high carbohydrate, high protein or high fat diets were respectively 7, 6 and 5 times as attractive to female *Aedes aegypti* as rats on control diets when exposed simultaneously. This preference was not displayed when the various diet groups were exposed individually or when the mosquitoes were denied a blood meal for 12 days. Blood sugar levels did not affect the rats' attractiveness. Mosquitoes were not attracted to the cages after the rats had been removed.—G. K. SWEATMAN.

- HADAWAY, A. B. & BARLOW, F. (1957). The influence of temperature and humidity upon the action of insecticides. I. During the post-treatment period. II. Temperature during the pre-treatment period.—*Ann. trop. Med. Parasit.* **51**, 187-193 & 194-200. [Authors' summaries modified.] **3318**

I. Mosquitoes (*Aedes aegypti* and *Anopheles stephensi*) and house-flies (*Musca domestica*) were kept at different temperatures and different humidities after treatment with kerosene solutions of D.D.T., gamma-B.H.C., dieldrin or

diazinon, and after contact with dry deposits of D.D.T., gamma-B.H.C. or dieldrin wettable powders. The toxicity of D.D.T. decreased substantially as the post-treatment temp. increased from 20° to 30°C., whereas the toxicity of dieldrin and diazinon increased. Temperature had no significant effect on the action of gamma-B.H.C. although there was a tendency for kills of house-flies to be greater at higher temp. Differences in humidity had no significant effect.

II. Mosquitoes (*A. aegypti*) and houseflies were reared at two different temperatures, 25° and 30°C., before topical application of kerosene solutions of D.D.T., dieldrin or gamma-B.H.C. At both temperatures the median lethal doses for female mosquitoes varied in a regular manner through successive feeding-cycles, and those for female house-flies increased with age to a maximum when eggs were produced in large numbers. The temp. before treatment, therefore, had no significant effect on susceptibility.

BUSVINE, J. R. (1957). **Insecticide-resistant strains of insects of public health importance.**—*Trans. R. Soc. trop. Med. Hyg.* **51**, 11-31.

Discussion: pp. 32-36. **3319**

Resistance to D.D.T., gamma B.H.C., dieldrin, chlordane, toxaphene, aldrin, and new organo-phosphorus insecticides has been reported in houseflies, 5 species of *Anopheles*, several culicines, lice, bedbugs, fleas and cockroaches. B. believes that (1) development of resistance depends upon the presence of resistant genes which may give a generalized and a highly specific resistance; (2) the more intense the selection, the more rapid the development of resistance; and (3) the rate of selection of a resistant strain depends upon the number of generations a year. Any plan to overcome resistance would involve using alternative, or a mixture of, insecticides, its recognition as early as possible, and using, in some cases, increased dosages, or attempting other methods of control.

—M. L. CLARKE.

POKIDOV, I. I. (1957). [Use of aerosols for the destruction of ticks which transmit blood protozoa of cattle.]—*Veterinariya, Moscow* **34**, No. 3. pp. 58-62. [In Russian.] **3320**

Spraying cattle with an aerosol of 10% B.H.C. in oil ("spindle oil") killed *Boophilus* ticks and prevented re-infestation for at least 10 days. Between 100 and 250 g. of soln. were used for each animal. Treatment resulted in a striking reduction in the incidence of "haemosporidial infections" (presumably piroplasmosis and theileriosis).—R.M.

NIKOL'SKII, S. N. & GLUKHOV, V. F. (1957). [Acaricidal emulsions for the control of pasture ticks on cattle.]—*Veterinariya, Moscow* **34**, No. 3. pp. 49-57. [In Russian.] **3321**

Six preparations were tested: B.H.C.-ichthyol emulsion, chlorten, B.H.C.-chlorten emulsion, B.H.C. in mineral oil, B.H.C.-creolin emulsion, and "SK-9". The preparation most active against *Boophilus* ticks in lab. tests was an emulsion of B.H.C. in mineral oil: when diluted 1:600 to give 0.000156% B.H.C., it killed 0.4% of larval ticks and paralysed 71% within 24 hours. At 1:100 it killed 3.9% of the ticks and paralysed the remaining 96.1% within 6 hours. Dipping of cattle infested with *Boophilus*, *Haemaphysalis*, *Dermacentor* or *Hyalomma*, confirmed that this preparation was the most effective. To overcome decrease in activity of the emulsion in a bath, the interval between dips was shortened from 13 days after the first dip to 10 days after the fourth. To protect cattle from theileriosis and piroplasmosis transmitted by *Haemaphysalis*, weekly dipping was recommended.—R.M.

KITAOKA, S. & YAJIMA, A. (1954). **Effects of insecticides against ticks. II. Effect on loss of body weight and the oviposition of ticks.**—*Abstr. Proc. Suiyokai, Tokyo*. 1956. pp. 34-37. [In English.] **3322**

A comparative study was made of a wide range of insecticides. Loss of body wt. in normal ticks was $2 \pm 0.43\%$ in 2 days and occurred through the cuticle. This increased abruptly to 8% in the case of γ -B.H.C. and parathion when the dose exceeded 6 $\mu\text{g.}/\text{g.}$ With other insecticides it was: α -B.H.C. (3-30 mg./g.), pp' -D.D.T. (300 $\mu\text{g.}$ to 7 mg./g.), tetramethylthiuram disulphide and tetraethylthiuram disulphide (100 $\mu\text{g.}$ to 1 mg./g.). Oviposition was completely inhibited by γ -B.H.C. and by parathion at 5 $\mu\text{g.}/\text{g.}$, by D.D.T. at 200 mg./g. and by allethrin at 200 $\mu\text{g.}/\text{g.}$ Maximum doses of op' -D.D.T. and of α -B.H.C. only inhibited 40%. Pyrethrins and allied synthetic compounds, and organic compounds of chlorine, phosphorus and nitrogen were tested for their effects on larvae and compared with D.D.T.

—T.E.G.R.

WILKINSON, P. R. (1957). **The spelling of pasture in cattle tick control.**—*Aust. J. agric. Res.* **8**, 414-423. [Author's summary modified.] **3323**

When two comparable herds of cattle were kept continuously in adjoining paddocks, frequent acaricidal treatment was necessary to con-

trol ticks (*Boophilus microplus*). When one of the herds was grazed alternately in its own and an adjacent paddock, at intervals sufficient to ensure that most of the ticks in the unoccupied paddock had died, tick infestations were greatly reduced, and less frequent use of acaricides was necessary. The herd remaining in the continuously stocked pasture continued to need acaricidal treatment for recurring tick infestation. In a field trial with 350–400 cattle moved at intervals to each of 3 formerly heavily infested paddocks, tick infestations remained very light, although the herd was dipped only in January, September, and the following January. A control herd on continuously stocked pasture, treated at the owner's discretion, required 8 dippings in this period. This procedure of "pasture spelling" seems likely to be widely applicable in central Queensland.

BURGDORFER, W. (1957). Artificial feeding of ixodid ticks for studies on the transmission of disease agents.—*J. infect. Dis.* **100**, 212–214. [Author's summary modified.] **3324**

Glass capillary tubes filled with infective fluid are pushed over the hypostome and chelicerae of ticks immobilized in plasticine. The ticks ingest up to 0.03 ml. of fluid during a feeding period of 4 to 6 hours. The technique proved suitable for experimentally infecting *Dermacentor andersoni* and *Amblyomma maculatum* with *Leptospira pomona*, and *D. andersoni* with rabies virus.

MURRAY, M. D. (1957). A preliminary note on the efficiency of some of the new insecticides against *Psorergates ovis*, the itch mite of sheep.—*Aust. vet. J.* **33**, 122–123. **3325**

A screening technique was used in which insecticides were applied to shorn patches on the sides of heavily infested sheep. The results were determined by examining scrapings from the area two days after treatment. This indicates the immediate kill of mites but does not allow any estimate to be made of the residual action. Insecticides were classed as satisfactory if only one or two live mites were found. Delta isomer of B.H.C. and Thiodan were satisfactory at 0.5% but unsatisfactory at 0.1%. Aldrin was unsatisfactory at 0.5%. Malathion at 0.8, 0.4 and 0.2%, diazinon at 0.5 and 0.01%, and Neguvon (L 13/59) at 0.5, 0.1, and 0.01% were all satisfactory. Malathion at 0.01% and

diazinon at 0.005% were unsatisfactory. Gamma isomer of B.H.C. and dieldrin administered s/c at 100 mg./kg. body wt. failed to kill mites. As dips would also be required to kill body lice and keds a few tests were made on individual sheep against these parasites. Diazinon at 0.001% was effective against lice and keds and malathion at 0.001% was effective against lice.

—N. P. H. GRAHAM.

MARKÓI, B. (1957). Megfigyelések a kutyák demodicosisának gyógykezeléséről. [*Treatment of demodectic mange in dogs.*]—*Mag. állator. Lapja* **12**, 46–47. [English and Russian summaries. Abst. from English summary.] **3326**

M. failed to cure demodectic mange in dogs with a 0.5% soln. of trypanblue as described by Ajmerito [see *V.B.* **25**, 2858], or with 0.5% methylene blue. In cases which could not be treated by cauterization, good results were obtained with a 10% soln. of gamma benzene hexachloride in alcohol; for the pustular form a depot penicillin preparation was given also.

—M.G.G.

REID, W. M., LINKFIELD, R. L. & LEWIS, G. (1956). Limitations of malathion in northern fowl mite and louse control.—*Poult. Sci.* **35**, 1397–1398. **3327**

Dusting litter, nest boxes, and dropping boards with 5% malathion dust (commercial) gave effective control of lice, but only reduced the mite population, which built up after treatment, necessitating repeated applications of the dust.—M. L. CLARKE.

QUAN, S. F., HARTWELL, W. V., SCOTT, K. G. & PENG, C. T. (1957). Cerium 144 as a tag for arthropods of medical importance.—*Trans. R. Soc. trop. Med. Hyg.* **51**, 87–88. **3328**

Fleas, ticks, mosquitoes, certain hemipterous bugs and cockroaches were exposed, by various methods, to solutions of Ce^{144} — Pr^{144} . These isotopes, which had a half-life of 282 days and 17.5 min. respectively, showed very little loss of radioactivity after a week, and in the case of tagged fleas, at the end of a month.

—M. L. CLARKE.

PARASITES IN RELATION TO DISEASE [HELMINTHS]

GEE, C. D. (1957). **Bluestone in the control of liver fluke.**—*Agric. Gaz. N.S.W.* **68**, 142-143 & 150. **3329**

The control of liver fluke by the use of bluestone has long been advocated, but rarely practised. This article dealing with the practical aspect of control on a New South Wales farm should help to make its use more popular. The bluestone is made up into about a 10% solution and sprayed on to the snail habitats at the rate of 30 gal. per acre in spring and autumn. The cost of spraying is slightly more than that of drenching sheep with carbon tetrachloride, but its success, as indicated by the absence of flukes in the livers of slaughtered animals, has been such that the owner is considering cutting out routine dosing for fluke.

—C. B. OLLERENSHAW.

HUTCHISON, W. M. (1957). **The incidence and distribution of *Hydatigena taeniaeformis* and other intestinal helminths in Scottish cats.**—*J. Parasit.* **43**, 318-321. [Author's summary modified.] **3330**

The incidence of cestodes and nematodes in the small intestine of stray cats in Scottish cities was estimated to be: *Taenia (Hydatigena) taeniaeformis*, 7.7%; *Dipylidium caninum*, 50.6%; *Toxocara mystax*, 13.7%; and *Toxascaris leonina*, 15.3%. The distribution and intensity of infection of these helminths within the gut is recorded and their interrelations discussed.

ARCHER, R. K. & POYNTER, D. (1957). **Anaemia and eosinophilia associated with helminthiasis in young horses.**—*J. comp. Path.* **67**, 196-207. **3331**

The authors studied the blood picture in 10 crossbred pony foals, aged 2-4 months, of which 6 were maintained worm free by regular dosing with piperazine adipate, and the other 4 were allowed to acquire a natural helminth infestation. A normocytic normochromic anaemia, together with erythroid hypoplasia of the bone marrow, occurred in the undosed group. The authors also found a correlation between eosinophilia of the peripheral blood and bone marrow and the worm burden. They suggest that the anaemia and erythroid hypoplasia may be associated with interference with absorption from the large intestine due to helminthiasis.

—M. L. CLARKE.

KOBULEJ, T. (1956). **Beiträge zur Biologie des *Amidostomum anseris* (Zeder, 1800).** [Biology of *Amidostomum anseris*.]—*Acta vet.*

hung. **6**, 429-449. [In German. Russian summary.] **3332**

Under optimal conditions embryonal development lasts for 12 hours at 30°C. and not more than 24 hours at 16° to 24°C. The first and second stage larvae do not leave the egg. At 16° to 24°C. the first moulting begins at 40-50 hours of age and is complete within 10 hours. The second moulting takes place between 60 and 80 hours of age. The cuticles are usually not shed. Third stage larvae lived in water for 3-4 weeks; at 0°C. they remained alive for 2 months. Eggs and larvae were not affected by freezing, provided that the temp. did not fall too low; but they did not survive drying for 30-60 hours.—M.G.G.

LELAND, S. E., JR. & DRUDGE, J. H. (1957). **Studies on *Trichostrongylus axei* (Cobbold, 1879). II. Some quantitative aspects of experimental infections in rabbits.**—*J. Parasit.* **43**, 160-166. **3333**

LD₅₀ values of the larvae assessed by 3 methods were 13,000, 11,000 and 13,000. Worm recovery in initial infection ranged from 6% of 16,000 to 31% of 4,000 larvae administered; in re-infections it ranged from 0.5% of 173,000 to 15.5% of 44,700. At the various dose levels death occurred in 31-72 days, with an average of 51.2 days. The average pre-patent period was 22.7 days and the male/female ratio was 0.82. The distribution of adult forms in the alimentary canal varied with the interval between death and P.M. examination. Immediately after death of the host over 90% were found in the gastric mucosa; later there was migration or translocation into the stomach contents and, in some cases, into the small intestines. The egg laying potential was 20.3 eggs/female/24 hours. From re-infection studies it was concluded that: superimposed infection was possible; egg counts and worm burdens were higher than in initial infections; the male/female ratio was 0.66 and the egg-laying potential was 29.9. The pathology of infection and re-infection is discussed.—T.E.G.R.

GOODCHILD, C. G. (1957). ***Trichinella spiralis* infections in Thiry-Vella fistulated rats.**—*J. Parasit.* **43**, 294-303. [Author's summary modified.] **3334**

T. spiralis can live, mature, and reproduce in an intestinal region totally devoid of normal exogenous food. Excysted juveniles established themselves in Thiry-Vella fistulas and succeeded in infecting most of 35 rats (each implanted with

about 200 artificially excysted larvae). Fewer encysted larvae were recovered from skeletal muscles after fistular infections than when identical doses of larvae were administered orally.

Some adults from the fistular infection had their anterior ends threaded into the mucosa, others were lying alive in the lumen in contact with the mucosa, while still others were trapped and dead in the copious luminal mucus. These adults were stunted in size as compared to intestinal adults, but attained sexual maturity.

Encysted larvae, produced by females in the fistulae, were normally infective for rats when administered orally and produced a normal muscular infection.

LIANG YU WU & KINGSCOTE, A. A. (1957). **Studies on *Trichinella spiralis*. II. Times of final molt, spermatozoa formation, ovulation, and insemination.**—*Canad. J. Zool.* **35**, 207-211. 3335

Intestinal trichinella (male) made their final moult from 27 to 33 hours after introduction into the stomach in white mice by means of a stomach tube. Some spermatogonia appeared on the testes wall after 24 hours, and free spermatozoa occurred after 26 hours. In female trichinella in white rats, 3 of 550 seminal receptacles contained ova but no spermatozoa after 30 hours; spermatozoa were seen in the same receptacle after 32 hours. It was 37 hours before both ova and spermatozoa occurred together in white mouse infections.—G. K. SWEATMAN.

MACKERRAS, M. J. (1957). **Observations on the life history of the cat lungworm *Aelurostrongylus abstrusus* (Railliet, 1898) (*Nematoda: Metastrongylidae*).**—*Aust. J. Zool.* **5**, 188-195. [Abst. from author's summary.] 3336

First-stage larvae of *A. abstrusus* developed readily in the garden slug, *Agriolimax laevis*, two moults occurring in this host. When infected slugs were eaten by a cat, the third-stage larvae migrated at once to the lungs, where they underwent the third and fourth moults. The prepatent period in the cat was about 39 days. The minute adult worms were found in the bronchioles of the cat. They were always very difficult to locate. The eggs were laid in the alveoli, forming a characteristic pattern of small, solid nodules scattered throughout the lung tissue. Mice were regarded as important auxiliary hosts.

POLLAK, J. K. (1957). **The uptake and utilization of ammonium ions by the parasitic**

roundworm *Ascaris lumbricoides*.—*Aust. J. Sci.* **19**, 208-209. 3337

The free ammonia content and the non-protein amino-acid content of the ovaries of intact *A. lumbricoides* were virtually unchanged when ammonium ions were present in the surrounding medium, but fell sharply when the ammonium ions were absent. It was concluded that the worms can take up and utilize ammonium ions for amino-acid synthesis.

—R. I. SOMMERVILLE.

KELLEY, G. W., JR., OLSEN, L. S. & HOERLEIN, A. B. (1957). **Rate of migration and growth of larval *Ascaris suum* in baby pigs.**—*Proc. helm. Soc. Wash.* **24**, 133-136. [Authors' summary modified.] 3338

The migration of *Ascaris* larvae was studied in 34 pigs. Almost all the larvae reached the liver by the 4th and the lungs by the 9th day of the infection. Larvae were first found in the small intestine on the 8th day. Larvae were 0.33 mm. long after 2 days in the pig; 0.43 mm. on the 4th day; 1.54 mm. on the 8th day; and 2.73 mm. on the 15th day. The larvae from pigs were generally larger than those from rabbits, g. pigs and mice.

SADUN, E. H., ALLAIN, D. & HEIMLICH, R. (1957). **Quantitative determination of *Ascaris* eggs in clear suspensions by photonephelometry.**—*Exp. Parasit.* **6**, 271-279. [Authors' summary modified.] 3339

Different concentrations of pig ascaris eggs in clear suspensions were estimated by photonephelometry and the readings compared with dilution egg counts. A linear relationship between the concentrations and the readings was observed. A nephelometric unit was equivalent to about 65 eggs per ml. The variation between different readings was directly proportional to the density of the concentration. The nephelometric readings were less variable and required less time than the dilution egg counts.

HORTON SMITH, C. & LONG, P. L. (1957). ***Ascaridia dissimilis* Vigouras, 1931, in British turkeys.**—*Vet. Rec.* **69**, 436. 3340

Ascarids recovered from heavily infested bronze turkeys proved to be *Ascaridia dissimilis*, a species apparently not previously reported from Britain. Attempts to infect chickens by feeding embryonated ova of *A. dissimilis* failed, although one bird was readily infected with eggs of *A. galli*. The authors suggest that ascarids hitherto reported from turkeys in Britain have been wrongly regarded as *A. galli*.

—M. L. CLARKE.

DISSANAIKE, A. S., DISSANAIKE, G. A., NILES, W. J. & SURENDRANATHAN, R. (1957). Further studies on radioactive mosquitoes and filarial larvae using autoradiographic technique.—*Exp. Parasit.* **6**, 261-270. [Authors' summary modified.] **3341**

Infective larvae of *Wuchereria bancrofti* and *Setaria digitata* with high β -activities were obtained. It is suggested that they will be of great value in studying the early development of filarial infections in the definitive hosts. Autoradiographic methods supplemented the counter techniques and showed the distribution of P^{32} in mosquitoes and infective filarial larvae.

TAYLOR, E. L. (1957). An account of the gain and loss of the infective larvae of parasitic nematodes in pastures.—*Vet. Rec.* **69**, 557-563. **3342**

The balance of host-parasite relationship and factors controlling it are discussed. Larval infestation of pastures is influenced by: the number of larvae per unit weight of herbage and per unit area; the rate of growth of herbage; larval development in the faeces; and the effect of resistance of stock on the larval content of herbage. Where animals are grazing on restricted areas adult sheep can withstand heavy infestation and youngstock are of greater importance in building up pasture infestation; a rapid rate of herbage growth is effective in decreasing the rate of intake of larvae; and, grazing by adult stock cleans heavily infected pastures even if the adults are placed on the pasture in addition to youngstock already present.—T.E.G.R.

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

GROUPÉ, V. & RAUSCHER, F. J. (1957). "Non-viral" tumors produced in turkeys by Rous sarcoma virus.—*Science* **125**, 694-695. **3345**

Rous sarcomas produced in young turkeys by as much as 10,000 ED₅₀ of fowl tumour virus yielded little or no extractable virus despite the fact that the dilution end-point for tumour production by fowl tumour virus was the same in chicks and turkeys. Serial passage of Rous sarcoma virus in turkeys was associated with a progressive loss in potency with each passage until the fourth when extracts of such tumours did not produce tumours in turkeys.

—A. ACKROYD.

BÖTTGER, T. (1956). Ermittlungen zur Frage der Verursachung der tumorösen Form der Rinderleukose. [Causes of the neoplastic

SHUMAKOVICH, E. E. (1957). [Alternatives in the control of helminth infestations of farm animals.]—*Veterinariya, Moscow* **34**, No. 4. pp. 33-38. [In Russian.] **3343**

Various practical difficulties interfered with the theoretical plans for completely eradicating helminth parasites. There was often an inaccurate assessment of the helminthological situation on a given farm. Mass anthelmintic treatment for prophylactic purposes was useless if done at the wrong time of year, or if all the animals were not dosed simultaneously. The destruction of eggs and larvae by the biothermal treatment of dung, pasture management, cleaning and disinfection of premises was not achieved if the farm management failed to co-operate with the veterinary surgeon. S. gave hints for the control of *Dictyocaulus* infestation in sheep and calves, fascioliasis, *Moniezia* infestation in sheep, and *Coenurus cerebralis* and related larval cestodes.—R.M.

DENEV, Y. (1956). [Benzine as an anthelmintic for fowls.]—*Sborn. nauch. Trud. vet. Inst. Minist. Zemed., Sofia* **6**, 283-290. [In Bulgarian. English and Russian summaries.] **3344**

Extracted benzine (or aviation spirit) was safe and highly effective against *Ascaridia*, *Heterakis* and tapeworms when 2-2.5 ml. were injected directly into the crop; it was much less effective against *Capillaria*. Automobile and synthetic benzine was toxic and could not be used for this purpose. No odour was detected in the meat of fowls treated 4 days previously. [See also *V.B.* **26**, 508].—R.M.

form of bovine leucosis.]—*Dtsch. tierärztl. Wschr.* **63**, 332-336. **3346**

A study of neoplastic leucosis in cattle revealed these facts: the disease may remain in a herd for over 20 years, in spite of the purchase of new bulls for breeding; unrelated animals introduced into an affected herd develop the disease; many herds remain free from the disease in spite of close blood relationships with affected herds. It is concluded that neoplastic bovine leucosis is not simply a hereditary disease, and that there must be a causal agent, which is stimulated by environmental factors.

—M.G.G.

RESSANG, A. A. (1957). A case report of lymphatic leucaemia in a water-buffalo.—*Hemera Zoa* **64**, 143-152. [In English.]

French, German and Indonesian summaries.] **3347**

The gross and microscopic findings in an 8-year-old female buffalo which was found to have died from lymphatic leukaemia are described. The animal had been used for 3 years for production of hyperimmune serum against haemorrhagic septicaemia, but this was not considered a contributory factor. This affection had not been reported before in this species in Indonesia.—A. ACKROYD.

LEWIS, E. B. (1957). **Leukemia and ionizing radiation.**—*Science* **125**, 965-972. **3348**

The probability of radiation induced leucosis in man is estimated from a study of: survivors of atomic bomb radiation in Japan;

patients irradiated for ankylosing spondylitis; children irradiated for enlargement of the thymus; and, radiologists. The effect of the body level of Sr^{90} on the spontaneous incidence of the disease is discussed.—T.E.G.R.

DARCEL, C. LE Q. (1957). **A note on the classification of the leucotic diseases of the fowl.**—*Canad. J. comp. Med.* **21**, 145-159. [French summary.] **3349**

A classification of avian leucotic diseases is presented and reviewed. It is suggested that a classification based on histogenesis rather than aetiology is desirable, and that only neoplastic conditions should be included and not the various forms of lymphomatosis which are not regarded as leucotic.—A. S. GREIG.

NUTRITIONAL AND METABOLIC DISORDERS

MUNRO, J. & INKSON, R. H. E. (1957). **The effects of different suckling frequencies on the quantity of milk consumed by young lambs.**—*J. agric. Sci.* **49**, 169-170. [Authors' summary modified.] **3350**

The milk consumption of lambs suckled at 4-hourly intervals was not greater than that of lambs suckled hourly.

MILFORD, R. (1957). **The value of faecal nitrogen and faecal crude fibre in estimating intake of four subtropical grass species.**—*Aust. J. agric. Res.* **8**, 359-370. **3351**

For each of four subtropical grasses there is a significant correlation between daily dry matter intake and total nitrogen in faeces per day. The slopes of the regression lines were not significantly different. The relationship for *Paspalum commersonii*, *Urochloa pullulans* and *Chloris gayana*, but not for *Panicum maximum*, could be expressed by one regression line. It was further shown that all regression lines could pass through the origin; *P. commersonii*, *U. pullulans* and *C. gayana* could be represented by a common regression line. However, the regression line for *P. maximum* differed significantly in slope from those of the other three grasses. The results indicate that species can be grouped for this relationship, and that it could be used to measure intake of the free grazing animal on monospecific swards or on mixed swards of species with similar relationships. Lancaster's technique for determining digestibility is discussed in the light of these relationships. Neither percentage faecal nitrogen nor faecal crude fibre was found to be satisfactorily correlated with dry matter digestibility.

—R. L. REID.

JOHNSON, W. P., ALGEO, J. & KLECK, J. (1957). **The effect of chlortetracycline supplementation on the incidence of foot rot and feed lot performance in cattle.**—*Vet. Med.* **52**, 375-378. [Abst. from authors' summary.] **3352**

In a study with 1,365 yearling steers in commercial fattening pens, the cattle were divided into 4 groups; 681 in 2 groups were fed a basal ration only and 684 in 2 test groups received a daily supplement of 500 mg. of chlortetracycline per head for 28 days and 75 mg. per head for 90 days. Final weights of the test animals averaged 2.2% more than controls, and average daily gains were increased by 0.2 lb. Chlortetracycline significantly reduced the necessity for treatment of disease from all causes. In an outbreak of foot rot, 172 controls were affected and only 2 of the test animals. For other diseases 68 control animals and 34 test animals required treatment.

CSONTOS, J., MESTYÁN, A. & PESTI, L. (1957). **Kísérletek a sertések gyomorbélhurutjának gyógyítására terramycinnel és aureomycinnel. [Treatment of porcine gastroenteritis with oxytetracycline and chlortetracycline.]**—*Mag. állator. Lapja* **12**, 15-17. [In Hungarian. English and Russian summaries. Abst. from English summary.] **3353**

Of 1,098 pigs given terramycin or aureomycin in the food, only a few developed gastroenteritis, whereas most of 1,764 untreated pigs developed the disease. The minimal dose, which should be given before the appearance of symptoms, is 330 mg. of terramycin daily for 3 days for a pig weighing over 30 kg.—M.G.G.

I. VIL'CHINSKAYA, A. S. (1955). [Effect of flax seed infusion on the secretory and motor function of the intestines of sheep.]—*Trud. mosk. vet. Akad.* 9, pp. 130-141. [In Russian.] 3354

II. VIL'CHINSKAYA, A. S. (1955). [Effect of linamarin on the secretory and motor function of the intestines of sheep.]—*Ibid.* 9, pp. 152-166. [In Russian.] 3355

I. & II. In sheep with an enterostomy, the mucus and protein components of flax seeds caused a weak but noticeable increase in intestinal secretion, and a more significant increase in intestinal motility. Linamarin given by mouth in small doses ($0.4 \mu\text{g./kg. body wt.}$) minimized extremities of secretory and motor activity; this effect lasted for about 24 hours. Higher doses ($0.8-1.2 \mu\text{g./kg.}$) had a similar action on secretion, and increased tone and reduced peristalsis. This action persisted for a few hours, but the bowel did not return to normal until 24-48 hours after administration. Doses of $2 \mu\text{g./kg.}$ caused toxic symptoms (restlessness, salivation, etc.). The action of linamarin was greater if caffeine or carbachol was administered at the same time, and lesser if chloral hydrate or atropine was administered.

—R.M.

JACOBSON, D. R., LINDAHL, I. L., MCNEILL, J. J., SHAW, J. C., DOETSCH, R. N. & DAVIS, R. E. (1957). **Feedlot bloat studies. II. Physical factors involved in the etiology of frothy bloat.**—*J. Anim. Sci.* 16, 515-524. [Authors' summary modified.] 3356

Increases in both the total and stable froth formation were noted *in vitro* in samples of rumen contents from cattle on bloat-producing diets. *In vitro* methods for measuring both were developed. Uncomplicated frothy bloat resulted from sufficient production of stable froth in the rumen and reticulum to block the eructation mechanism, partially or completely. Small amounts of saponin in the presence of glucose could aid greatly in the formation of stable froth.

A method for estimating the percentage of encapsulated micro-organisms in rumen contents is described. In an 8-week period there was a correlation coefficient of 0.94 between % encapsulated micro-organisms and the occurrence of bloat.

Over a 16-week period during which the incidence of bloat on a "dry-lot" diet increased steadily, there was a highly significant negative correlation between bloat and (a) % dry matter, (b) consistency index of rumen contents.

DORN, H. -J. (1956). Über die Behandlung von Durchmischungsgärung bei Schafen. [Treatment of bloat in sheep.]—*Tierärztl. Umsch.* 11, 451-453. 3357

Peracute foamy bloat in 15 sheep was quickly relieved by peroral administration of silicones.—M.G.G.

DAVIES, M. H., PALEY, R. G., HILL, I. & STANNARD, B. (1957). **A quick and easy method for blood-sugar estimation.**—*Brit. med. J.* March 2nd, 501-502. 3358

A rapid tablet method for the estimation of blood sugar is described. It has proved useful in the management of diabetic emergencies or in cases of suspected ketosis or hypoglycaemia, but it cannot be recommended even as a screening procedure, for the diagnosis or exclusion of diabetes.—J. A. NICHOLSON.

BELL, D. J. (1957). **Tissue components of the domestic fowl. I. The D-glucose content of whole blood.**—*Biochem. J.* 66, 137-141. [Abst. from author's summary.] 3359

The concentration of glucose in the blood of hens falls from about 220 mg./100 ml. at 4-6 months to about 190 mg./100 ml. at 4-6 years. In cocks it is lower, probably owing to the greater volume of r.b.c. It falls from about 200 mg./100 ml. at 4-6 months to about 160 mg./100 ml. at 1-2 years, and is considerably lowered by fasting. No sugars other than D-glucose were detected.

BRAGDON, J. H., ZELLER, J. H. & STEVENSON, J. W. (1957). **Swine and experimental atherosclerosis.**—*Proc. Soc. exp. Biol., N.Y.* 95, 282-284. [Authors' summary modified.] 3360

Addition of butter to the diet of pigs caused a significant rise in serum cholesterol. This did not occur in pigs fed isocaloric quantities of maize oil. The increase in cholesterol was limited to the high-density (alpha) lipoproteins. P.M. examination after 9 weeks on the experimental diets revealed lesions in the aorta somewhat resembling human atheromata, in 3 of the 4 butter-fed, 1 of the 4 maize-oil fed pigs and in 2 of the 4 controls on a conventional diet.

HILL, E. G., WARMANEN, E. L., HAYES, H. & HOLMAN, R. T. (1957). **Effects of essential fatty acid deficiency in young swine.**—*Proc. Soc. exp. Biol., N.Y.* 95, 274-278. [Authors' summary slightly modified.] 3361

Rigid exclusion of essential fatty acids from the diet of young pigs leads to a deficiency

disease not characterized by consistent or early skin lesions. The severity of the dietary regime imposed caused high mortality, but of the 8 pigs that survived beyond the normal weaning age, skin lesions were observed in one and aortic lesions in 5, at or before 98 days on experiment. The data suggest that essential fatty acids are required by pigs and that deficiency of essential fatty acids may lead to impairment of the arterial wall.

BARNETT, A. J. G. & REID, R. L. (1957). The distribution of the volatile fatty acids formed from dried grass by the action of rumen liquor in the artificial rumen.—*Biochem. J.* **65**, No. 2, pp. 13P of Proceedings. **3362**

Using an artificial rumen, it was observed that with fresh grass acetic acid is produced in major amount early in the year while later on propionic acid is produced in greatest quantity. With dried grass acetic acid predominated at all times.—J. A. NICHOLSON.

REED, A. & AGARWALA, O. P. (1956). Effect of aureomycin and vitamin B₁₂ on the growth of weaned pigs fed a high-protein diet.—*Indian J. vet. Sci.* **26**, 203-210. [Abst. from authors' summary.] **3363**

Newly weaned piglets fed a ration supplemented with 27 mg. aureomycin and 27 mg. vitamin B₁₂ per ton of feed made significantly higher gains after 4 and 5 weeks' feeding, than controls without a supplement. The difference in gain was not quite significant after 6 weeks' feeding, and not statistically significant at the 5% level of probability after 10 weeks; from the 16th to 26th week there was very little difference in rate of growth between test and control groups, and during the 26 weeks the test pigs required slightly more feed per lb. gain than controls. The results indicate that there is no advantage in giving these supplements beyond the 16th week and further evidence is needed to determine whether the increase in growth during the first 5 weeks is economical.

RUTENBURG, A. M., SONNENBLICK, E., KOVEN, I., APRAHAMIAN, H. A., REINER, L. & FINE, J. (1957). The role of intestinal bacteria in the development of dietary cirrhosis in rats.—*J. exp. Med.* **106**, 1-14. [Authors' summary modified.] **3364**

Diffuse hepatic cirrhosis develops in rats on a choline-deficient diet within 300 days. Addition of absorbable broad spectrum antibiotics to the daily diet does not prevent the development of fatty infiltration, but delays the development of cirrhosis for about 100 days more.

Addition of non-absorbable antibiotics to the daily diet prevents the development of cirrhosis in most rats for as long as 750 days. The superiority of non-absorbable to absorbable antibiotics excludes a systemic effect of the antibiotics and demonstrates that intestinal bacteria are largely, if not wholly, responsible for the cirrhosis in rats on a choline-deficient diet.

GOLDWASSER, E., JACOBSON, L. O., FRIED, W. & PLZAK, L. (1957). Mechanism of the erythropoietic effect of cobalt.—*Science* **125**, 1085-1086. **3365**

Results of studies on rats are taken to indicate that cobalt increases r.b.c. production by stimulating the formation of the plasma factor, erythropoietin.—T.E.G.R.

ALEXANDER, G. I. & HARVEY, G. M. (1957). A survey of the incidence of copper deficiency in dairy cattle in coastal Queensland south of Brisbane.—*Qd J. agric. Sci.* **14**, 23-27. [Authors' summary copied *verbatim*.] **3366**

Copper deficiency in dairy cattle has been diagnosed over most of the lower watersheds of Queensland rivers south of Brisbane by analysis of livers from slaughtered animals. Blood copper concentrations were also used as an index for a few properties from which livers were not available. Samples were obtained from 127 properties, of which 95 were copper deficient.

There is a correlation between the distribution of alluvial soils in this area and the incidence of copper deficiency in cattle. It is postulated that the low fertility of these alluvial soils and the dominance of narrow-leaved carpet grass (*Axonopus affinis*) may account for this correlation.

ANON. (1957). Grass staggers in dairy cows. Effect of excessive potash topdressing.—*N.Z. Agriculturist* **9**, No. 3, pp. 1-2. **3367**

Recent studies in dairy cows especially in the Netherlands have indicated that grass tetany is associated with grazing of pastures rich in potash and phosphate and poor in magnesium, lime and sodium, and that there is a definite relationship between the fertilizers used, the resulting chemical composition of the pasture and the occurrence of grass tetany. There appears to be an association between the cow's diet and the blood Mg level and also a specific physiological antagonism between K and Mg. Top-dressing with compounds containing Mg instead of pure potash can improve the serum Mg levels of cows and reduce the incidence of grass tetany.—A. ACKROYD.

MCDONNELL, P. M. (1957). **Interference in soil phosphorus analyses by snail shells.** — *Nature, Lond.* **180**, 90-91. **3368**

Four soil samples were taken from the same spot in an area of calcareous grassland. Extraction of the readily soluble phosphorus with Morgan's solution revealed considerable variation in content (from 2.5 to 15 p.p.m.), not only between but also within samples. This is considered to be due to the presence of the shells of *Helicella itala* and *H. aspera*. Extraction of the shells of these snails revealed a soluble P content of 168 p.p.m. and of live snails a content of up to 472 p.p.m.—M.G.G.

SVENSSON, S. A. (1957). **Skeletal retention of injected radiophosphate in chicks kept on feeds of different phosphate content.** — *Nature, Lond.* **179**, 972-973. **3369**

Radiophosphate determinations on chicks fed on different phosphate levels suggest that, once phosphate is deposited in the bone tissues, its retention is affected to a rather large extent by the phosphate content of the feed. There was no difference in growth rate for the high or low phosphate levels used. When radiophosphate was injected i/v, several days were required for maximum deposition in the bone tissues.—J. A. NICHOLSON.

HARTROFT, P. M. & EISENSTEIN, A. B. (1957). **Alterations in the adrenal cortex of the rat induced by sodium deficiency: correlation of histologic changes with steroid hormone secretion.** — *Endocrinology* **60**, 641-651. [Authors' summary modified.] **3370**

In rats deprived of sodium, extreme hypertrophy and altered lipid storage, indicating hyperactivity, were observed in the zona glomerulosa of the adrenal cortex. These changes were progressive, first detectable after two days and thereafter increasing in degree throughout the two month period of treatment. Although the changes were severe, they confirmed the findings of previous workers. Atrophy of the zona fasciculata was also found. The probable reasons and mechanism responsible for this unexpected finding are given. Increased aldosterone secretion was associated with hypertrophy of the zona glomerulosa and depressed glucocorticoid secretion with atrophy of the zona fasciculata. These findings present further evidence for the functional specificity of the zones in the adrenal cortex.

ANON. (1957). **Ammonia metabolism and hepatic coma.**—*Lancet* **272**, 623-624. **3371**

It is now established that ammonia intoxi-

cation is the cause of hepatic coma, since ammonia has a direct toxic action on the brain, secondary to failure of cerebral ammonia uptake. Toxic effects from interference with ammonia uptake rather than ammonia utilization, also occur at other sites.—J. A. NICHOLSON.

ANON. (1957). **Vitamin A and the cerebrospinal fluid.**—*Lancet* **272**, 826-827. **3372**

It has been reported that hydrocephalus occasionally occurs in infants born to mothers deficient in vitamin A. Experimentally, hydrocephalus was set up in young rabbits born to does deficient in vitamin A; it was probably a result of over-production of cerebrospinal fluid. Similarly chicks fed a ration deficient in vitamin A showed a significant rise in the pressure of the cerebrospinal fluid.—J. A. NICHOLSON.

PALLIOLA, E. & GUARDA, F. (1956). **Ulteriori ricerche istologiche ed istochimiche sulla miodistrofia enzootica dei vitelli. [Histological and chemical changes in muscular dystrophy of calves.]**—*Ann. Fac. Med. vet. Torino* **6**, 75-87. [English, French and German summaries.] **3373**

In affected muscles the lesions varied according to the stage and severity of the condition. Affected fibres showed scattered lesions; some were swollen, others atrophied and they were all intermixed with normal ones. In badly affected areas transverse striations were obliterated and replaced by areas of Zenker's degeneration, with irregular shape and disposition. These areas consisted of complex proteins with fractions of mucopolysaccharide acids having a high molecular weight and containing COOH, SO₂ and OH groups.—T.E.G.R.

SHULL, R., ALFIN-SLATER, R. B., DEUEL, H. J., JR. & ERSHOFF, B. H. (1957). **Comparative effects of alpha-tocopherol, DPPD and other antioxidants on muscular dystrophy in guinea pig.**—*Proc. Soc. exp. Biol., N.Y.* **95**, 263-265. [Authors' summary modified.] **3374**

Diphenyl-*p*-phenylenediamine, 6-ethoxy-2, 3, 4-trimethyl-1, 2-dihydroquinoline, and 2, 5-di-tert-butylhydroquinone delayed but did not prevent the occurrence of muscular dystrophy in g. pigs fed a highly purified diet deficient in vitamin E, whereas α -tocopherol acetate was fully protective.

DINNING, J. S. & DAY, P. L. (1957). **Vitamin E deficiency in the monkey. I. Muscular dystrophy, hematologic changes, and the**

excretion of urinary nitrogenous constituents.

—*J. exp. Med.* **105**, 395-402. [Abst. from authors' summary.] **3375**

Eight young rhesus monkeys fed a purified diet free from vitamin E all developed the following signs of vitamin E deficiency after 6-13 months on the diet: muscular dystrophy, increased excretion of creatine, allantoin and free amino-acids, and decreased excretion of creatinine. All developed anaemia and granulocytosis, anaemia being the first sign observed. All these changes were reversed by treatment with α -tocopherol.

PFALTZ, H. (1956). Missbildungen durch experimentell erzeugten Vitaminmangel. [**Malformations caused by experimental vitamin deficiency.**]—*Mh. Tierheilk.* **8**, 167-176. **3376**

Female rats fed a diet lacking vitamins B₁, B₂, B₆ or pantothenic acid for 35 or 28 days before mating were sterile. Fertility was low in those fed the deficient diets for 13 days before mating, particularly in those deprived of vitamin B₁. The young born to rats deficient in vitamin B₁ frequently had haemorrhages of the head, oedema of the head and body, and sometimes

exencephalia. The following deformities were observed in those from mothers deficient in vitamin B₂: hypognathism, cleft palate, shortening of the bones of the extremities, syndactylism, deformed feet, fusion of the ribs and deformation of the sternum. Histological examination revealed disturbed cartilage development and endochondral ossification.—M.G.G.

BOKORI, J. (1956). Veleszületett golyva malacokban. [**Congenital goitre in piglets.**]—*Mag. állator. Lapja* **11**, 364-369. [In Hungarian. English and Russian summaries. Abst. from English summary.] **3377**

Congenital goitre was observed in the litters of 3 sows in a region of endemic goitre. Pregnancy had been 2-6 days longer than normal and the piglets died within 24 hours. They were well developed but had sparse hair and severe oedematous infiltration of the subcutis. The thyroids were 8-10 times larger than normal; histological examination revealed struma parenchymatosa, and the iodine content was very low. Struma colloides was seen in an emergency-slaughtered sow. The cause is considered to be inadequate iodine, vitamins and protein in the diet of the sows.—M.G.G.

DISEASES, GENERAL

HINES, M. P., PAGE, P. M., HIRSCHBERG, N. & MADDRY, L. G. (1957). **Ornithosis and leptospirosis survey of a chicken and turkey processing plant and textile mill in North Carolina.**—*Vet. Med.* **52**, 337-338 & 356. [Authors' summary modified.] **3378**

A serological survey of 233 employees in a chicken processing plant, turkey processing plant, and textile mill, revealed complement-fixing antibodies to psittacosis in 38.6%, 32.7%, and 13.3%, of the employees respectively. There was no evidence of a past or present epidemic among those interviewed: presumably the virus was of low virulence. The percentage of titres to psittacosis among employees in the processing plants, compared to those in the textile mill, would probably be similar in random samples of any population. No explanation could be given for reactions to leptospira antigen in several of the textile plant employees.

LURÀ, A. & PEZZOLI, G. (1957). Primi risultati ottenuti con terapia fisica mediante microonde (onde radar) nelle affezioni degli organi di movimento del cavallo trotatore. [**Micro-wave therapy for lameness in horses.**]—*Vet. ital.* **8**, 108-122. [English, French and German summaries.] **3379**

Treatment was applied to 30 horses with chronic lameness due to various causes, as tendinitis, arthritis, myositis, rheumatoid conditions, and sprains. Satisfactory results are reported.—T.E.G.R.

COLOMBO, S. & GERVASINI, C. (1956). Contributo alla conoscenza delle lesioni istologiche, istochimiche del quadro cromatografico ed elettroforetico nella distrofia muscolare da trasporto del bovino. [**Histological, chromatographic and electrophoretic examination in bovine muscular dystrophy resulting from transport.**]—*Clin. vet., Milano* **79**, 353-364. [English summary.] **3380**

An account of muscular dystrophy, due to transport fatigue, in a cow. The symptoms, macroscopic and microscopic lesions are described. Chromatography and electrophoresis revealed an increase in the free amino-acid content of affected muscles and a decrease in the protein content.—T.E.G.R.

BAGLIONI, T., LOCATELLI, A. & QUARENGHI, F. (1956). Il quadro ematologico nella prima settimana di vita del vitello (Parte prima). [**Blood picture of calves during the first week**

of life. I.]—*Clin. vet., Milano* **79**, 257-266 & 289-297. **3381**

Blood values at birth (before ingestion of colostrum) and on the 7th day were: haematocrit 39.38—35.18%; Hb 13.28 g.—12.7 g%; r.b.c. 6,156,000—5,776,000; platelets 318,000—333,000; w.b.c. 8,080—7,254. The leucocyte formula was: neutrophils 52.48—42.47%; eosinophils and basophils absent; lymphocytes 42.24—49.49%; monocytes 5.25—7.83%. Initial haemolysis 0.64—6.63%; total haemolysis 0.36—0.37%. These values are discussed and compared with those obtained by other workers.—T.E.G.R.

BRION, A., FONTAINE, M. & LABIE, C. (1957). Présence de lésions nerveuses dans la rhinite atrophique du porc. [**Presence of nervous lesions in porcine atrophic rhinitis.**]—*C. R. Acad. Sci. Paris* **244**, 2870-2872. **3382**

Lesions were found in the semilunar (Gasserian) ganglion, the maxillary nerve anterior to the emergence of the nasal nerve, the nasal nerve, and the sphenopalatine ganglion. Macroscopically there was fine indurated granulation of the perineural connective tissue, and loss of lustre of the nervous tissue proper. Histological examination revealed sclerosis of perineural connective tissue and hypertrophy of the wall of blood vessels, often with thrombus formation; nerve fibres in contact with the nasal mucosa were replaced by fibrous tissue; nuclear degeneration was prominent in the semilunar ganglion. Macchiavello stain revealed "neorickettsial bodies," similar to those previously observed [V.B. **26**, 1993], in some cells of histiolympathic nodules in the perineural connective tissue. [There are no details about the animals from which the material was obtained.]—R.M.

BOBIN, A. (1954-1955). Sur un syndrome hémorragique du chien en Tunisie. [**A haemorrhagic syndrome of dogs in Tunisia.**]—*Ann. Serv. Prod. anim., Tunis* **2**, 115-125. **3383**

The condition, observed in 10 dogs, was characterized by sudden, spontaneous epistaxis and/or retinal haemorrhage without premonitory symptoms. Epistaxis led to obstruction of the nostrils with respiratory, circulatory and systemic disturbances. Death supervened in a few days to 3 months according to the severity of the case. In the eye the haemorrhage extended into the vitreous body and aqueous humour filling up the eyeball and causing ophthalmia, ulceration, keratocele and death within a few weeks. In either type the temperature was 39.3°C. The aetiology is unknown. Sympto-

matic treatment with general antihæmorrhagics gave good results in epistaxis and in mild cases of retinal haemorrhage; anti-leishmania treatment was also resorted to. Severe cases of retinal haemorrhage did not respond to treatment.—T.E.G.R.

HOLMES, J. R. (1957). A radiological study of the digits in renal osteodystrophy in the dog. —*Vet. Rec.* **69**, 642-643. [Author's summary copied *verbatim*.] **3384**

The radiological changes in the digits in the dog with rubber jaw are described and compared with the normal and with the changes in chronic nephritis, in which changes are similar but generally less advanced. These changes resemble those occurring at this site in hyperparathyroidism in man.

WAMBERG, K. (1957). Nogle iagttagelser over røntgenundersøgelser af fordøjelseskanaalen hos hunde og katte. [**X-ray examination of the digestive canal in dogs and cats.**]—*Medlemsbl. danske Dyrlægeforen.* **40**, 245-270. [In Danish.] **3385**

W. considers that screening is of more value than photography for diagnosis. Preliminary screening should be done before the contrast medium is administered. He discussed the function of the various parts of the digestive tract and described their X-ray picture and the various diseases demonstrable, and gave reproductions of X-ray pictures from his own cases. —F.E.W.

CHEEVER, F. S. (1956). Epidemic diarrheal disease of suckling mice.—*Ann. N. Y. Acad. Sci.* **66**, 196-203. [Author's summary modified.] **3386**

Diarrhoeal disease of unweaned mice is a major problem in mouse colonies in the U.S.A. The aetiology is not known, nor is it certain if it is a single disease entity, or perhaps more likely, a series of separate or overlapping syndromes. Pathological findings and transmission experiments suggest that a virus or viruses may play a significant role. It is possible that secondary bacterial invaders affect the outcome of the disease. Other factors are the strain of mouse, parity of the female, and season of the year. Humidity and the size of the litter may also be important.

WEISS, H. S. (1957). Age related changes in plasma cholesterol of the chicken.—*Proc. Soc. exp. Biol., N.Y.* **95**, 487-489. **3387**

W. concluded that the increase in incidence of atherosclerosis with age in the hen, or in the

cockerel up to 2 years of age, was not necessarily associated with an increase in total plasma cholesterol.

- CROUCH, B. G. & OVERMAN, R. R. (1957). **Chemical protection against X-radiation death in primates: a preliminary report.**—*Science* **125**, 1092. **3388**

Results of preliminary studies on 2 *Macaca mulatta* monkeys are taken to indicate that β -aminoethyl-isothiuronium in doses of 200–250 mg./kg. body wt. protects against 650r of whole-body X-radiation. In a subsequent experiment, 4 monkeys were still alive 30 days after a single dose of 150 mg./kg. administered before a dose of 650r whole-body X-radiation.—T.E.G.R.

- COCKCROFT, J. (1957). **Atomic energy and its biological implications.**—*Nature, Lond.* **180**, 64–67. **3389**

A review of the biological hazards and advantages arising from the development of nuclear energy. The safety precautions taken at atomic power stations are described and the recommendations of the committees of the Medical Research Council, the U.S. National Academy of Sciences, and the Atomic Scientists' Association are discussed. The contributions to experimental and therapeutic work made possible by radioactive isotopes are pointed out.

—M.G.G.

- BENEDEK, G. (1956). Bilirubin-próbák egyes háziállatfajok epéjével. (Előzetes közlemény). [**Bilirubin tests in domestic animals.**]—*Mag. állator. Lapja* **11**, 361–363. [In Hungarian. English and Russian summaries. Abst. from English summary.] **3390**

The bile of cattle, pigs, dogs and cats in dilutions of 1:200 gave characteristic reactions for bilirubin in oxidation and diazo-tests. The bile of dogs and cats is regarded as pleiochromic; with diazo-reagents it gave a violet colour without precipitation; on the addition of caffeine it became bright red. The bile of cattle and pigs gave a bright red colour with diazo-reagents, but a precipitate was formed. With the addition of caffeine the precipitate dissolved and the colour intensified. Only doubtful reactions were obtained with horse bile in diazo-tests with caffeine; bilirubin was demonstrated on one occasion, however, by means of Gmelin's, Grimbert's or Rosin's tests. The three last-named tests gave only doubtful results with sheep bile, but in the diazo-test a brown colour was seen. Fowl bilirubin gave a violet or red colour in the diazo-test, but fowl biliverdin gave a brown colour.—M.G.G.

- GALLAGHER, C. H. (1957). **Enzymological aspects of pathology.**—*Aust. vet. J.* **33**, 70–71. **3391**

This is a brief account of the enzymologist's approach to chemical pathology.

—K. G. JOHNSTON.

POISONS AND POISONING

- SUTHERLAND, D. A. & EISENTRAUT, A. M. (1956). **The direct Coombs test in lead poisoning.**—*Blood* **11**, 1024–1031. [Interlingua summary.] **3392**

Blood samples from human beings and dogs with chronic lead poisoning did not settle out promptly into two clearly defined portions of r.b.c. and supernatant plasma; a column of r.b.c. remained suspended in the plasma. A large proportion of these r.b.c. were reticulocytes and cells with coarse basophilic stippling. The direct Coombs test was always positive for the superior fraction, while often negative for the lower levels and for the whole blood. Two possible conclusions can be drawn: (1) reticulocytes retain free globulin groups on the membrane causing a positive direct Coombs reaction, or (2) immature r.b.c. are preferentially damaged by lead and the chemical reaction on the cell membrane causes the alteration.

—M.G.G.

- SHAND, A. & LEWIS, G. (1957). **Chronic copper poisoning in young calves.**—*Vet. Rec.* **69**, 618–621. [Authors' summary modified.] **3393**

Chronic copper poisoning developed in calves fed a milk substitute supplemented with copper. The most common characteristic was sudden haemoglobinaemia and haemoglobinuria associated with marked jaundice. In animals which did not die soon after the haemolytic crisis bile pigments added to the jaundiced appearance. In fatal cases liver necrosis was usually widespread and not, as in sheep, confined to the centre of the lobule. The calf kidney seemed better able to excrete haemoglobin derivatives than the sheep and there was less damage and blocking of tubules. The Cu content of the livers was over 1,300 p.p.m./dry matter. Experimental calves fed a similar diet stored in the liver 1,600–3,600 p.p.m. Cu/dry matter. A blood sample from a field case had a Cu content 4 times the normal. These findings conform

to those suggested by Bull [see *V.B.* **22**, 3806] as the basis on which copper poisoning can be diagnosed.

DALHAMN, T. & FRIBERG, L. (1957). **Morphological investigations on kidney damage in chronic cadmium poisoning. An experimental investigation on rabbits.**—*Acta path. microbiol. scand.* **40**, 475-479. [In English. Authors' summary modified.] **3394**

Daily s/c injections of cadmium sulphate (0.65 mg. Cd per kg. body wt.) in rabbits for 10 weeks led to pronounced damage to the renal tubules; no changes were demonstrable in the glomeruli. After 2 and 5 weeks' exposure no definite lesions were found. Proteinuria appeared after 5-6 weeks' exposure.

HILL, H. & SIEGMUND, K. H. (1957). Beiträge zum Vitamin E-Stoffwechsel. I. Mitteilung: Vitamin-A-Schutz durch Vitamin E bei experimenteller Chlornaphthalinvergiftung. [Vitamin E metabolism. I. Protection by vitamin E in experimental chlorinated naphthalene poisoning.]—*Dtsch. tierärztl. Wschr.* **64**, 304-306. **3395**

Administration of vitamin E *per os* or intramuscularly to g. pigs poisoned with chlorinated naphthalenes did not prevent the appearance of clinical symptoms and death, but had a sparing effect on the vitamin A content of the liver.—M.G.G.

NOYAN, A. & DREPPER, K. (1957). Mikro- und papierelektrophoretische Untersuchungen über Proteinfraktionen von Sojaextraktions-schroten. (Beitrag zur Aufklärung der Dürer Krankheit). [Studies on micro-electrophoresis and paper electrophoresis with protein fractions from soya bean extracts. (Contribution to the study of Dürer disease).]—*Zbl. VetMed.* **4**, 369-378. [English, French and Spanish summaries. English summary modified.] **3396**

A sample of soya meal was defatted partly with trichlorethylene, partly with ether and partly with benzene. Proteins extracted from these 3 fractions with water were studied by micro-electrophoresis, and by paper electrophoresis. The differences between the 3 extracts were not sufficient to indicate the factor responsible for Dürer disease (trichlorethylene poisoning).

SPENCER, G. R. (1957). **Poisoning of cattle by pentachlorophenol in kerosene.**—*J. Amer. vet. med. Ass.* **130**, 299-300. **3397**

A five-year old Hereford cow was one of two

which died within 24 hours of drinking 5% pentachlorophenol in kerosene. The lesions resembled those seen in tetrachlorethylene and carbon tetrachloride poisoning.

—J. A. NICHOLSON.

GARNER, R. J. (1957). **A spectroscopic study of the fate of warfarin and coumachlor in the rat.**—*Nord. VetMed.* **9**, 464-473. [In English. Danish and German summaries. English summary modified.] **3398**

An account of a spectroscopic method for demonstration of warfarin and coumachlor in biological materials. After a single oral dose, warfarin disappears from the stomach after 24 hours and cannot be detected anywhere in the intestinal tract after 48 hours. During the first 24 hours it may appear in the faeces but it is accompanied and ultimately replaced by a new compound having absorption maxima (in acetic acid-ethanol) at 284 and 313 m μ . This compound rapidly disappears from the faeces and is present in traces only after 48 hours. Warfarin appears in the liver within 24 hours and can be detected at least 144 hours after a single oral dose: some may be excreted in the urine during the first 48 hours after oral administration but may be accompanied or replaced by a substance having a spectrum similar to that of the faecal compound with maxima at 284 and 312-313 m μ . This substance is superseded after 48 hours by one showing maxima at 281 and 306 m μ . Chloroform extracts show yet another material with a characteristic U.V. absorption spectrum having maxima at 257, 261 and 282 m μ .

After a single oral dose of coumachlor, chloroform extracts of urine show maximum absorption at 257, 262 and 282 m μ within 24 hours. There is no indication of the presence of a component with an absorption maximum at 313 m μ in the faeces. Neither coumachlor nor any derivative can be detected in the liver 144 hours after a single dose.

ERNE, K. (1957). **The detection of parathion in biological material.**—*Nord. VetMed.* **9**, 450-454. [In English. German and Swedish summaries. English summary modified.] **3399**

An account of a sensitive and specific method for the detection of parathion and of its degradation product p-nitrophenol in P.M. material. After benzene extraction the two compounds are separated from contaminants by column chromatography. Further purification and identification of parathion and p-nitrophenol are made by paper chromatography.

Both compounds are detected on the chromatograms as the yellow p-nitrophenoxide ion—in the case of parathion after alkaline hydrolysis. Further proof of the identity of parathion is provided by elution and by an azo dye reaction as described by Averell & Norris (1948). Parathion and p-nitrophenol could be detected at concentrations of about 0.5 p.p.m. and 1–2 p.p.m., respectively.

CASE, A. A. (1957). **Some aspects of nitrate intoxication in livestock.**—*J. Amer. vet. med. Ass.* **130**, 323–329. **3400**

Numerous plants concentrate nitrates and under adverse weather conditions, particularly drought, sufficient may be present to cause poisoning, as in cornstalk disease. Poisoning may follow grazing or when the plants are incorporated in silage. Lucerne, clovers, sorghums and some common weeds may contain as much as 0.6% nitrate.—J. A. NICHOLSON.

BRUERE, N. (1956). **Nitrite / nitrate poisoning on second-growth rape.**—*N. Z. vet. J.* **4**, 128. **3401**

Mortality among sheep on second growth rape during the summer and autumn is reported. In some cases sudden death occurred after the sheep had been grazing rape for some time, in others soon after turning on to a fresh growth of rape. Toxicity seemed to be associated with warm, rainy and cloudy conditions. Mortality in 3 outbreaks was: 20 out of 337 lambs, 54 out of 700 ewes, and 13 out of 790 ewes. Affected animals appeared "uncomfortable," had a stilted gait, arched backs and mucus-covered diarrhoea. Death or recovery was rapid and P.M. findings were haemorrhagic gastro-enteritis and anaemia. The leaves may be more toxic than the stalk.—T.E.G.R.

LLOYD, J. R. (1957). **The use of a liver function test in the prognosis of ragwort poisoning in cattle.**—*Vet. Rec.* **69**, 623–625. **3402**

A simple liver function test described by Woolf (1951) [*V.B.* **25**, 3342], was applied in respect of a number of cattle involved in an outbreak of ragwort poisoning. From results obtained it is considered that the test is of value for the detection of subclinical cases in the course of an outbreak.—T.E.G.R.

NAFTALIN, J. M. & CUSHNIE, G. H. (1956). **Haematology of experimental bracken poisoning of cattle. I. Changes in blood and bone marrow. II. Attempts to modify the course**

of the bone marrow damage.—*J. comp. Path.* **66**, 354–372. **3403**

Experimental bracken poisoning was studied in Ayrshire calves, 3–5 months old, by feeding fresh green bracken to appetite. The bracken was eaten without apparent distaste. Bone marrow changes were observed ten days after the experiment began and consisted in a diminution in the degree of cellularity and a reduction in the intermediate and late normoblasts with a terminal aplasia.

Dried bracken harvested in July 1952 induced typical bracken poisoning when fed in January to April 1953, as did bracken steam-heated for one hour at 100°C. Vitamin B therapy did not alter the course of the bone marrow change. It is concluded that a poison rather than a specific nutritional deficiency is the cause of the bone marrow damage.

—J. A. NICHOLSON.

WESTERMARCK, H. (1956). **Electrocardiographic changes in sheep following intravenous and oral administration of digitalis.**—*Zbl. VetMed.* **3**, 727–734. [In English. French, German and Spanish summaries.] **3404**

In 2 sheep the minimal i/v doses of digitalis required to produce inversion of the T-wave in the electrocardiogram were 0.1 and 0.16 i.u./kg. of live wt. respectively. In 2 other sheep the minimal oral doses were 1 and 1.4 i.u./kg. The drug caused nervousness and loss of appetite. In 4 sheep anaesthetized with chloralose the i/v lethal dose of digitalis was between 0.3 and 0.59 i.u./kg. (0.35–0.68 i.u./kg. body wt. excluding the wt. of the forestomachs).—M.G.G.

SELYE, H. (1957). **Effect of various hormones upon the syndrome of dihydrotachysterol (AT-10) intoxication.**—*Acta endocr., Copenhagen* **25**, 83–90. [In English. Abst. from author's summary.] **3405**

Experiments on rats indicated that the toxic effects of dihydrotachysterol—especially the loss in body wt. as well as the calcification of the aorta, heart and kidneys—were increased by concurrent treatment with oestradiol, cortisol acetate, corticotrophin and thyroxine. Conversely, methyltestosterone and somatotrophin exerted a protective effect against the sterol.

THOMSON, R. A. E., MCKAIG, D. B. & MICHAELSON, S. M. (1957). **Bromsulphalein dye retention test in toxicological investigations.**—*Proc. Soc. exp. Biol., N.Y.* **95**, 243–245. [Authors' summary modified.] **3406**

Fifteen min. after i/v. administration of

bromsulphalein to rabbits at a dosage of 10 mg./kg., dye was present in the blood and a satisfactory determination of the dye concentra-

tion was possible. Liver damage was reflected by an increased retention of bromsulphalein 15 min. after inj. of the dye.

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease).

WHITTEN, W. K. (1956). **Physiological control of population growth.**—*Nature, Lond.* **178**, 992. **3407**

In female mice, which received i/p 25 mg. of the surface-active agent 'Triton' W.R. 1339 on 2 successive days, or a single i/p dose of 10 mg. of suramin, implantation of the ova did not occur, or the embryos were aborted or resorbed. This finding shows the need to test new drugs in pregnant animals.—M.G.G.

I. IVANOVA, G. A. (1955). [Therapeutic properties and pharmacology of thiargen.]—*Trud. mosk. vet. Akad.* **9**, pp. 69-75. [In Russian.] **3408**

II. VIDMANOV, A. V. (1955). [Effect of thiargen on the cardiovascular system.]—*Ibid.* **9**, pp. 76-85. [In Russian.] **3409**

I. Thiargen is a stable complex of silver and sodium first described by Garkusha (1952) and used for the treatment of piroplasmosis of cattle and sheep [see also *V.B.* **26**, 3136]. The toxic dosage was 5-6 times the therapeutic dosage. Signs of toxicity were excitement, alternating with depression, and frequent pulse and respirations. Therapeutic doses stimulated the cardiac and intestinal musculature.

II. The author confirmed that therapeutic doses (0.01-0.02 g./kg. body wt.) stimulated the circulatory system; this action was not harmful to the animal.—R.M.

SIEGEL, B. V., SMITH, M. J. & GERSTL, B. (1957). **Effects of cortisone on the developing chick embryo. A histological study.**—*Arch. Path.* **63**, 562-570. [Authors' summary modified.] **3410**

Dropping cortisone on to the chorioallantoic membrane of the chick embryo resulted in marked interference with growth and development that varied directly with the dosage. Among the changes noted were (a) atrophy of

the epithelium, premature keratinization, and lack of barb formation of the feathers; (b) retardation of mesenchymal development, such as delay of ossification of bones and reduced growth of skeletal muscle and adipose tissue; (c) retarded development of the bronchial tree, including the epithelium; (d) necrosis of liver cord cells, and degeneration of the glomeruli and tubules of the kidney.

HUBLÉ, J. (1957). **Effects of cortisone-acetate on chondrogenesis and ossification in cockerels.**—*Acta endocr., Copenhagen* **25**, 59-63. [In English.] **3411**

Chondrogenesis in the proliferation zones of the proximal and distal ends of three long bones of the cockerel's leg was markedly inhibited by cortisone acetate in daily doses of 5 mg./100 g. body wt. for 7 days. The rate of growth was also impaired at this dosage.—R.M.

KHARCHENKO, M. D. (1956). [Transfusion of heterogenous blood into horses.]—*Trud. mosk. vet. Akad.* **10**, pp. 70-77. [In Russian.] **3412**

K. describes stimulative and therapeutic effects of heterogenous blood transfusion in horses and discusses a possible mechanism involved. A danger of shock constantly encountered when the usual techniques of blood transfusion are employed can be avoided by adopting either of the two described methods: (1) By using the blood diluted in normal saline 1:25—1:40, doses of 80-150 ml. can be given. Reaction is usually slight, seldom severe and never fatal. (2) By continuous drip: this method is claimed to be less laborious and safer. Up to 400 ml. of the undiluted blood can be transfused at the rate of 100 ml./hour with full beneficial effects and without signs of shock.

—S. TERLECKI.

See also absts. 3162-3163 (penicillin-resistant staphylococci); 3177 (TB.); 3182 (effect of streptomycin on *Past. septica* in vitro); 3188 (salmonella dysentery); 3189 (Bact. viscosum equi); 3208 (equine leptospirosis); 3214 (action of antibiotics on leptospira); 3217 (Cl. botulinum intoxication); 3222 (effect of X-rays and cortisone on susceptibility to *C. albicans*); 3224 (ringworm); 3227 (dapsone); 3229-3231 (trypanosomiasis); 3235 (farazolidone in avian trichomoniasis); 3236 (effect of parahydroxybenzoic acid, paraaminobenzoic acid and riboflavin on *Pl. gallinaceum*); 3300 (dicarbonyls in influenza and Newcastle disease); 3315-3316, 3318-3322. 3325 & 3327 (insecticides); 3344 (petrol as an anthelmintic for fowls); 3352 (chlortetracycline and foot rot); 3353 (oxytetracycline and chlortetracycline in porcine gastroenteritis); 3357 (bloat); 3426 (antibiotics in foodstuffs).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

NAY, T. & DOWLING, D. F. (1957). **Size of sweat glands in Shorthorn strains and zebu Shorthorn crossbred cattle.**—*Aust. J. agric. Res.* **8**, 385-393. [Authors' summary copied verbatim.] **3413**

A relatively simple technique for measuring the size of apocrine glands in biopsy cattle-skin sections was shown to be reliable. Duplicate skin samples were compared and the repeatability of the sweat gland measurements found to be 81.0% and that of density 95%. There were highly significant differences in sweat gland size between strains of cattle, and between cattle within strains.

TAYLOR, R. J. F. (1957). **The work output of sledge dogs.**—*J. Physiol.* **137**, 210-217. [Author's summary modified.] **3414**

The pull of a team of 9 sledge dogs was measured for 3000 km., by means of resistance strain gauges connected to a microammeter. Maximum power output which could be maintained for 10 min. was 0.235 horse-power from a dog of 39 kg.; per kg. body wt. this is very close to the maximum recorded in man. Max. work output was similar for walking and for trotting. When trotting the peak effort was at one-third of the max. loading and at one-third of top speed. When walking the appropriate conditions were two-thirds of the max. loading and one-sixth of top speed. It is suggested that different factors control the performance of the dogs while walking, while trotting and while running.

TURNER, C. W., YAMAMOTO, H. & RUPPERT, H. L., JR. (1956). **The experimental induction of growth of the cow's udder and the initiation of milk secretion.**—*J. Dairy Sci.* **39**, 1717-1729. **3415**

A group of 7 heifers that had failed to conceive, a set of monozygotic twins and a freemartin were used in this experiment. Each animal was injected daily with a mixture of 100 mg. progesterone and 100 µg. oestradiol benzoate for 180 days; little or no change in the appearance of the udders was noticed during this period. This treatment was followed by daily injections of 3 mg. oestradiol for 14 days or more. There was a marked increase in the induced milk yield of 6 of the sterile heifers between the 3rd and 6th days (it was delayed in the 7th). Maximum yields were obtained at 5-14 weeks and closely approached normal yields.—T.E.G.R.

GREENBAUM, A. L. & SLATER, T. F. (1957). **Studies on the particulate components of rat mammary gland. I. A method for determining the composition of the retained fluid. II. Changes in the levels of the nucleic acids of the mammary glands of rats during pregnancy, lactation and mammary involution. III. The relationship between enzyme activity and particle counts in mammary gland suspensions.**—*Biochem. J.* **66**, 148-155; 155-161 & 161-166. [Authors' summaries modified.] **3416**

I. The content of deoxyribonucleic acid, lactose and total nitrogen in suspensions of rat mammary-gland tissue was determined at intervals during the lactation cycle. A method is described by which the lactose and nitrogen content of colostrum and milk can be determined near the time of parturition. The contribution by tissue and retained fluid to the total nitrogen content of the suspensions was calculated. Tissue nitrogen increases slowly during pregnancy, very rapidly at parturition and slowly again during lactation.

II. There is a rise in the total nitrogen content of the gland during pregnancy and lactation; a similar rise is found in the mitochondrial nitrogen. The total ribonucleic acid content increases progressively from early pregnancy to late lactation and declines during mammary involution. Parturition is accompanied by a rapid rise. The mitochondrial ribonucleic acid content rises during pregnancy, but becomes stationary on the third day of lactation, until mammary involution sets in. The deoxyribonucleic acid content increases during pregnancy. It doubles at parturition after which it remains constant throughout lactation. The significance of the changes in deoxyribonucleic acid content at parturition indicate a wave of cell division in the gland.

III. Succinic oxidase activity in suspensions of rat mammary tissue increases sharply at parturition, reaching a maximum midway through lactation. Identical changes of activity in the whole-tissue suspension and in the large-particle fraction, and high activity in the large-particle fraction indicate that most of the succinic oxidase activity is in this fraction. The increased activity is probably due to: (1) an increase in mitochondrial numbers; (2) an increase in mitochondrial size; (3) the removal of inhibitory factors. The large-particle count indicated a rapid decrease in the number of particles at parturition. It is suggested that this

was due to a rapid decrease in particles other than mitochondria occurring simultaneously with a small increase in mitochondrial numbers. Interrelationships between ribonucleic acid, deoxyribonucleic acid, tissue nitrogen, succinic oxidase and large-particle counts are discussed.

COLES, B. L. (1957). **Serum protein pattern in normal kittens.**—*J. Physiol.* **136**, No. 2. pp. 37P of Proceedings. **3417**

Using paper electrophoresis, it was found that in normal kittens for the first two days of life the protein pattern reflected that of the mother with high total protein, low albumin and high gamma globulin values. There was then a steady fall in gamma globulin to a minimum level at 21 days, which remained fairly constant until 5-6 weeks of age after which there was a progressive rise.—J. A. NICHOLSON.

REIS, R. H. & TEPE, P. (1956). **Variations in the pattern of renal vessels and their relation to the type of posterior vena cava in the dog (*Canis familiaris*).**—*Amer. J. Anat.* **99**, 1-15. **3418**

The right renal artery practically always follows the same pattern: a single branch of the aorta penetrating the hilus. On the left side 13.2% of the animals had multiple independent arteries. Multiple renal veins were extremely rare (1%). In all cases the arteries entered, and the veins emerged from, the hilus. The pattern of the renal vessels in the dog is compared with that in man and in the cat.

—T.E.G.R.

WINTZER, H. -J. (1957). **Über intrathorakale Eingriffe am Pferd und Rind für physiologische Untersuchungen des Herzens. [Intra-thoracic approach to physiological studies on the heart of the horse and ox.]**—*Zbl. VetMed.* **4**, 319-324. [English, French and Spanish summaries. English summary modified.] **3419**

Thoracotomy was carried out on 8 cattle and 5 horses. Artificial respiration, narcosis and the surgical technique are described.

SCOTT, M. G. & SCOTT, P. P. (1957). **Post-natal development of the testis and epididymis in the cat.**—*J. Physiol.* **136**, No. 2. pp. 40P-42P of Proceedings. **3420**

In normal kittens at birth, the testes were fully descended; their combined weight increased from 20 mg. to 100 mg. between birth and weaning. The earliest signs of division leading to spermatogenesis appeared at 20 weeks in cats

in which the testes weighed 400-500 mg.; spermatozoa were observed when the testes exceeded 1g. Subsequent to the onset of spermatogenesis, the testis increased in proportion to body wt., the maximum wt. recorded being 4 g.

—J. A. NICHOLSON.

RENZONI, A. (1957). **Vorkommen von Mastzellen im Hoden und Nebenhoden der Haustiere. [Occurrence of mast cells in the testis and epididymis of domestic animals.]**—*Zbl. VetMed.* **4**, 485-496. [English, French and Spanish summaries. English summary slightly modified.] **3421**

Statistics are given concerning the number of mast cells in the testis and epididymis of the ox, pig, horse and dog. In both organs mast cells seem to be attracted towards a particular type of connective tissue, notably the adventitia of blood vessels and the tubules of the epididymis. The cells always show a marked metachromasia, which only disappears in very acid solution or very great dilution. Only about 10% of the cells are positive to the Hotchiss reaction, which suggests that the cell granules are in differing stages of development.

SCHÜMMANN, H. J. (1957). **The distribution of adrenaline and noradrenaline in chromaffin granules from the chicken.**—*J. Physiol.* **137**, 318-326. [Author's summary modified.] **3422**

Homogenates in isotonic sucrose of the adrenal glands of fowls were centrifuged in a density gradient tube. In the upper layers of the tube were granules containing very little catechol amine. Granules in suspension below this contained practically only adrenaline. The sediment contained a mixture of adrenaline and noradrenaline, and fractions with very high concentrations of noradrenaline were obtained. When insulin had been administered to the fowls, the layers which normally contained only adrenaline contained a mixture of adrenaline and noradrenaline.

DAWSON, J., WEIDMANN, S. M. & JONES, H. G. (1957). **The effect of parathormone on the ³²P uptake by the bones of rabbits and cats.**—*Biochem. J.* **66**, 116-122. [Authors' summary modified.] **3423**

The major effect is decreased uptake of phosphates by the endosteal layer of the diaphyseal shaft, as shown by tracer experiments with ³²P. This can be observed in nephrectomized rabbits. The relation of parathormone to active processes maintaining bone structure is discussed.

POLIN, D. & STURKIE, P. D. (1957). **The influence of the parathyroids on blood calcium levels and shell deposition in laying hens.**—*Endocrinology* **60**, 778-784. [Authors' summary modified.] **3424**

Laying hens showed a marked decrease in diffusible and non-diffusible plasma calcium after parathyroidectomy, and laid premature eggs about 3-5 hours after the operation. In normal laying hens shell deposition caused a marked decrease in the diffusible plasma calcium. These data were discussed in relation to the role of the parathyroids in the regulation of calcium concentration and their indirect influence on shell deposition.

CAMERON, C. B. (1957). **The liver and steroid hormone metabolism.**—*Brit. med. Bull.* **13**, 119-125. **3425**

Some of the evidence relating to steroid metabolism by the liver is examined, with particular emphasis on human metabolism, and *in vivo* experiments. The steroids discussed are (1) adrenal hormones—in particular hydrocortisone; (2) progesterone; (3) testosterone; (4) oestrogens. There is strong evidence that the liver plays an important role in the metabolism of hydrocortisone and progesterone. This involves reduction in ring A as well as the side chain. Both testosterone and oestrogens can be metabolized by the liver—but the significance of this metabolism, in man, cannot be assessed. The primary steroids are excreted in the free state; however, a number of conjugated steroid metabolites have been found. The experimental evidence for the role of the liver in these conjugation mechanisms is weak. The clinical aspect of liver disease in relation to steroid metabolism and physiology is discussed.—N. SABA.

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

DURBIN, C. G. (1957). **Public health significance of antibiotics in foods.**—*J. Amer. vet. med. Ass.* **130**, 280-282. **3426**

It is pointed out that antibiotic residues in meat and dairy products have not been proved to be harmless.—M.G.G.

BISCHOFF, J. (1957). Untersuchungen ausländischer Eiprodukte. [**Examination of imported egg products.**]—*Berl. Münch. tierärztl. Wschr.* **70**, 111-112. [English summary.] **3427**

Examination of 21,790 samples of egg products imported during 1956 revealed salmonella in 935 (4.3%). 19 types were identified, *S. thompson* being by far the commonest. The samples from China, Yugoslavia and Holland had the highest incidence of infection.—M.G.G.

LOVELL, R. (1957). **Food poisoning in man, with special reference to meat and meat products.**—*Roy. Soc. Hlth J.* **77**, 85-91. **3428**

L. discussed changes in the feeding habits of human beings from the days when food was obtained by gathering and hunting and emphasized the great changes which have taken place during the last 40 years, with mass use of communal feeding in restaurants and canteens, largely as a result of the conditions imposed or evolved as a result of two world wars. The theme dealt with in detail was bacterial food poisoning caused mostly by *Salmonella* (especially *S. typhi-murium*), *Staphylococcus aureus*, certain streptococci, *Clostridium welchii*

and *Cl. botulinum*. He emphasized that no disease has a single cause and that many other influences play their part in the operation of the "poisonous" agent. In a large industrial population with large-scale proprietary and other prepared foods in universal use, there are great opportunities for food to become unfit for consumption at one or another stage in its preparation and storage. Vulnerable links in the chain of supply and use may be revealed only after a change in some method of preparation or storage.

In 1954, 6,016 food-poisoning incidents occurred in England and Wales. Figures for the years 1941 onwards showed a steady increase. Changes in the food eaten have occurred; and economics, agriculture, animal husbandry in particular, transport and conditions of labour have each played a part. Meat dishes are frequent sources of infection. Of the 197 outbreaks from this source in 1954, 19 were associated with canned meat, 7 with other meats, and in 78 of the remaining 171 re-heated meat and meat pies were responsible. The food animals themselves are probably responsible for only a small number of outbreaks. The distribution of the types of salmonella in cattle is in marked contrast to that obtaining in food poisoning in man. *S. dublin* has usually been the species isolated from cattle faeces, *S. typhi-murium* rarely. On the other hand *S. typhi-murium* occurs more commonly in pigs, *S. cholerae-suis*, *S. montevideo* and *S. enteritidis* less and less frequently. Dogs, cats, rats, mice and even pigeons may spread salmo-

nella infection in abattoirs, food shops and kitchens. There is little information on the incidence of salmonella in or on the carcasses of animals passed as fit for human consumption, but some figures are available.

The number of salmonella consumed is important in food poisoning. L. gave examples from tests on human beings with organisms from spray-dried eggs. For the production of symptoms 10 to 24 millions of *S. meleagridis* were necessary, with *S. anatum*, half a million to over 60 million; with *S. pullorum* the amount was 12,000 million. With some other human pathogens the dose was from a quarter of a million upwards. Therefore the outbreak is usually caused by circumstances arising after the meat has left the abattoir. The human carrier plays a role. Heat resistance of the organisms is another factor: e.g. *S. cholerae-suis* is relatively more sensitive to heat than *S. typhi-murium*. Slow cooling of large containers gives opportunities for growth in cooked foods that are infected and this is the factor in *Cl. welchii* poisoning. Here, the heat resistance of the spores is important.

Staphylococci may be derived from the nose or from skin lesions in food handlers or less frequently from milk or milk products. In suitable circumstances the relatively resistant toxin can develop.

It has been emphasized that the milk-borne diseases of a past generation are giving place to food-borne diseases. The means for prevention

are known and breakdowns are the result of defects in management.

The use of antibiotics and sex hormones introduces fresh complication into the food problem. The position is under constant change and requires constant supervision.—W.A.P.

SUISOEV, A. A. (1957). [**Veterinary science in the North Korean Republic.**]—*Veterinariya, Moscow* 34, No. 4. pp. 83-86. [In Russian.] 3429

Since 1953 a veterinary research institute and a veterinary faculty of the Agricultural Academy have been organized in North Korea. Rinderpest and bovine contagious pleuropneumonia were the most serious diseases of cattle. Russian methods have been adopted for the preparation of aluminium hydroxide tissue vaccine against rinderpest and alum-precipitated vaccines against pasteurellosis. Fowls were inoculated i/m or i/v, twice yearly, with a formolized embryo vaccine prepared from a local strain of Newcastle disease virus. For swine fever, an aluminium hydroxide tissue vaccine and crystal violet vaccine were employed, the latter being inoculated i/d in 0.5-1 ml. doses. A tissue emulsion of chick embryos containing the 25th embryo passage, or subsequent passages, of sheep pox virus provided a suitable vaccine against sheep pox. It was stated that a North Korean journal of veterinary science commenced publication in 1956. No figures are given for disease incidence.—R.M.

See also absts. 3190 (fertilizers as source of salmonellosis); 3211 (canicola fever in man from pigs); 3255 (Trichophyton in man from fowls); 3319 (insecticide-resistant insects of public health importance); 3334-3335 (trichinella).

REPRODUCTION AND REPRODUCTIVE DISORDERS

MOODIE, E. W. (1957). **Problems in the artificial breeding of livestock.**—*Med. J. Aust.* April 13th, 491-495. 3430

Recent trends in artificial breeding of livestock are surveyed. A brief description of ova transplantation is followed by a discussion of artificial insemination. The possibility of storing semen at temperatures between 5° and 37°C. is mentioned, and the problems of deep frozen semen outlined.—A. W. BLACKSHAW.

MACPHERSON, J. W. (1957). **Goats' milk as a semen diluent.**—*Canad. J. comp. Med.* 21, 161-162. [French summary.] 3431

Comparative trials showed that goats' milk could be used as a satisfactory semen diluent, but motility was maintained longer with cows' milk as a diluent.—A. S. GREIG.

FLIPSE, R. J. & ALMQUIST, J. O. (1956). **Diluters for bovine semen. IX. Motility of bovine spermatozoa in milk-glycine and egg yolk-glycine diluents with and without glycerol.**—*J. Dairy Sci.* 39, 1690-1696. 3432

The survival rate of bovine spermatozoa was the same in fresh skim milk (heated)—0.5M glycine (1:1) as in egg yolk—0.5M glycine (1:1) and it was significantly higher than in heated skim milk alone. Average survival during 20 days at 5°C. in reconstituted "non fat dry milk solids" (NFDMS)—0.5M glycine was higher than in NFDMS alone and was increased further by the addition of glucose or fructose to the NFDMS—0.5M glycine.—T.E.G.R.

BAIER, W., LEIDL, W. & GREIFF, W. (1957). **In vitro Untersuchungen über die Wirkung**

von Glykokoll als Verdünnerzusatz für Bullensperma. [**Glycine in diluents for bull semen.**]—*Berl. Münch. tierärztl. Wschr.* **70**, 229-230. [English summary.] **3433**

After storage in egg-yolk diluent for 1-5 days at 5°C., bull spermatozoa showed an increase in motility lasting for 4 hours when 1.5% glycine was added at 38°C. This was seen both by microscope and by measurement of the oxygen consumption.—M.G.G.

MACPHERSON, J. W. (1957). **A warm stage for the microscopic examination of mammalian spermatozoa.**—*Canad. J. comp. Med.* **21**, 163-164. [French summary.] **3434**

A microscopic warm stage was developed for use in spermatozoa examination. The stage is designed to hold the slide at the proper distance from the condenser, allow a variable range of temperatures, allow specimens to be changed easily and have the benefits of a mechanical stage.—A. S. GREIG.

NORMAN, C., BORTOFF, A. & DUNBAR, R. S., JR. (1956). **Reversible inhibition of motility and respiration in bovine spermatozoa.**—*Anat. Rec.* **125**, 632. **3435**

Preliminary observations indicated that the loss of motility in spermatozoa treated with 1.7×10^{-4} M iodoacetate may be due to the action of hydrogen peroxide. Complete protection and good recovery was obtained by the addition of catalase. Recovery of progressive motility appeared after 6 hours of inhibition. This suggests that iodoacetate induces the formation of a toxic and spermistatic concentration of H_2O_2 . The addition of 2, 3-dithiolpropanol produced a slight but significant recovery of vibratory movement. Treatment of spermatozoa with 3.3×10^{-3} M dithiol enhanced endogenous respiration and inhibited exogenous respiration; the spermatozoa lost their progressive motility after 3 hours, but not when auto-oxidation was reduced by 0.1 ml. of 0.3 M disodium versenate.—M.G.G.

SHERMAN, J. K. (1957). **Ice as a mechanical factor in death of spermatozoa on freeze-thawing.**—*Proc. Soc. exp. Biol., N.Y.* **95**, 543-545. [Abst. from author's summary.] **3436**

Results of an attempted correlation between survival on shaking and on freeze-thawing suggest that death on freeze-thawing is not caused by mechanical injury by ice.

BUCH, N. C., SMITH, V. R. & TYLER, W. J. (1956). **Bull and line differences in the sur-**

vival of spermatozoa after freezing and thawing.—*J. Dairy Sci.* **39**, 1712-1716. **3437**

Before freezing there was no significant difference in the quality of semen from different bulls. A marked difference, however, was observed in the ability of spermatozoa from different bulls to withstand freezing. There was no evidence of genetic difference in the survival of spermatozoa before or after freezing.

—T.E.G.R.

BORTOFF, A. (1956). **The effect of glutathione on the fertilizing capacity of frozen bovine spermatozoa.**—*Anat. Rec.* **125**, 631-632. **3438**

Half of each of 6 semen samples were treated with 4×10^{-3} M reduced-glutathione added to skim milk diluent. The mean 60-90 day non-return rate (108 cows) using the glutathione-treated samples was 69.44%, as compared with 58.33% (120 cows) using control samples.—F. L. M. DAWSON.

BHARGAVA, P. M. (1957). **Incorporation of radioactive amino-acids in the proteins of bull spermatozoa.**—*Nature, Lond.* **179**, 1120-1121. **3439**

Bull spermatozoa in a medium containing about 0.05 μ M/ml. of amino-acids labelled with ^{14}C incorporated the acids at the rate of 0.12 μ M per g. of protein hourly. With time the rate of incorporation decreased, almost in parallel with the fall in motility. Since bull semen was shown to be virtually devoid of ribonucleic acid, it seems either that a role is played by deoxyribonucleic acid in protein synthesis or that it is an enzymic process independent of nucleic acids. No radioactivity was incorporated by the seminal plasma.—M.G.G.

HARTREE, E. F. (1957). **Inositol in seminal plasma.**—*Biochem. J.* **66**, 131-137. [Author's summary modified.] **3440**

Boar seminal plasma contains 600-700 mg. of inositol/100 ml., mostly in the free state. Bull, human, rabbit, ram and stallion seminal plasma contain less than 100 mg./100 ml. In all species the concentration is much greater than in the blood and cerebrospinal fluid. It is suggested that the inositol content of boar semen can be taken as an index of the secretory activity of the seminal vesicles. A parallelism between the levels of fructose and inositol in body fluids supports the view that inositol may function as an intermediate in the interconversion of glucose and fructose, but at present there is no evidence for any metabolic role of inositol in semen.

POTTS, I. F. (1957). **The mechanism of ejaculation.**—*Med. J. Aust.* April 13th, 495-497. **3441**

The available evidence suggests that erection and ejaculation are mediated *via* the parasympathetic sacral outflow. The importance of this is stressed in regard to surgery of the autonomic system. In patients unable to ejaculate because of neurological lesions the use of electrical stimulation did not cause erection or ejaculation.—A. W. BLACKSHAW.

SANTAMARINA, E. & REECE, R. P. (1957). **Normal development of the germinal epithelium and seminiferous tubules in the bull.**—*Amer. J. vet. Res.* **18**, 261-278. **3442**

The testes of 5 foetuses, 90-200 days, and 15 calves, up to 71 days old, involving 4 breeds, were studied. One calf was studied serially by biopsy to 5½ months of age. Two kinds of cells were already apparent in the 90-day foetus, the "large" disappearing by 70 days after birth and the "small" giving rise to the germinal epithelium. Primary spermatocytes were observed at 71 days old. The tubule lumina developed only after 4 months of age by dissolution of a filling matrix present from early foetal life, a process requiring about 6 weeks for completion.

—F. L. M. DAWSON.

JOHARI, M. P. (1957). **Semino-vesiculitis in a bull at an artificial insemination centre.**—*Indian J. vet. Sci.* **27**, 17-21. **3443**

The diagnosis was based on detection by palpation *per rectum* of a hard swelling at the proximal end of the left seminal vesicle of a Sahiwal bull. Cultural examination was not done, but agglutination reaction for *Brucella* infection was negative. The animal appeared to have recovered without treatment in about a year.—R. N. MOHAN.

RATSIMAMANGA, A. R., NIGEON-DUREUIL, M. & RABINOWICZ, M. (1956). Présence d'hormone "type cortinique" dans le lait de la vache gravide. [**Presence of adrenal cortical hormone in the milk of pregnant cows.**]—*C. R. Soc. Biol., Paris* **150**, 2179-2182. **3444**

Adrenal type steroids were found in milk of pregnant cows. Ultra-violet absorption, paper chromatographic behaviour, and biological activity in the cold survival test were used for their detection and estimation. Very few details are given.—N. S. SABA.

KLYNE, W. & WRIGHT, A. A. (1957). **Steroids and other lipids of pregnant goat's urine.**—

Biochem. J. **66**, 92-101. [Authors' summary modified.] **3445**

Oestrone (0.3 mg./l.) and oestradiol-17 α (0.1 mg./l.) were isolated from the phenolic fraction of pregnant goat's urine. Oestradiol-17 β could not be detected. The heterocyclic phenol equol (isoflavan-7:4'-diol) was also isolated (10-15 mg./l.). 5 β -Pregnane-3 α :20 α -diol (2 mg./l.) was isolated from the neutral non-ketonic fraction. There was no evidence for the presence of isomeric pregnanediols. The neutral non-volatile ketonic fraction was small (1 mg./l.). *epi*Androsterone (3 β -hydroxy-5 α -androstan-17-one) was isolated from it in impure form. Three other α -17-oxo steroids were partially characterized. Much other volatile material giving a purple colour in the Zimmermann dinitrobenzene reaction was present. This 'apparent 17-ketosteroid' material probably includes ionone derivatives. Species differences in urinary steroids were discussed.

POBISCH, R. (1957). Zu welchem Zeitpunkt kann die Gravidität beim Kaninchen subjektiv und röntgenologisch festgestellt werden und wie weit wird die intrauterine und postnatale Entwicklung der Früchte dadurch beeinflusst? [**Early determination of pregnancy in rabbits by palpation and X-rays and its possible effect on the offspring.**]—*Zbl. VetMed.* **4**, 359-368. [English, French and Spanish summaries. Abst. from English summary.] **3446**

In the rabbit, palpation combined with radiography after artificial pneumoperitoneum can detect pregnancy within 8 days of coitus. Palpation of the early gravid uterus does not harm the foetus, neither does pneumoperitoneum carried out under aseptic conditions cause harm, to the dam or to the foetus.

RAESIDE, J. I. (1957). **Progesterone a precursor of testicular androgens in sheep.**—*Proc. Soc. exp. Biol., N.Y.* **95**, 300-302. [Author's summary modified.] **3447**

Daily administration of progesterone by s/c injection to a ram and a castrate male sheep for one week resulted in a great increase in faecal androgenic activity in the ram. This suggests that progesterone may serve as a precursor of testicular androgens in the sheep. Some androgen excretion in the faeces of a pregnant ewe was noted but little faecal androgen from untreated males.

LAMOND, D. R. (1957). **Relative potency of some commercial gonadotrophic preparations.**—*Aust. vet. J.* **33**, 127-128. **3448**

A simplified assay method was used to test the potency of some commercial preparations of human chorionic gonadotrophin and pregnant mare serum gonadotrophin. All of the preparations tested were less potent than was stated on the labels. Also, there was a two to three-fold difference between solutions freshly made up and after storage. Preparations stored in the refrigerator retained their potency over a 3-week period.—A. W. BLACKSHAW.

KOCHAKIAN, C. D. & TILLOTSON, C. (1957). Influence of several C_{19} steroids on the growth of individual muscles of the guinea pig.—*Endocrinology* **60**, 607-618. [Abst. from authors' summary.] **3449**

G. pigs of the inbred Hartley strain were castrated at 510 g. body wt. and when they attained a wt. of 610-640 g. were implanted s/c with pellets of various steroids. All of the steroids except methylandrosterone- $3\beta,17\beta$ -diol and 17-methyl-5-androstene- $3\beta,17\beta$ -diol produced a small increase in body and carcass wt. which, however, was not proportional to the dose. The muscles of the head, neck, chest, shoulder, back, abdominal wall, and a few from other areas were stimulated out of proportion to the increase in body wt. while the rest increased in proportion to the rise in wt. The presence of the 17-methyl group decreased the activity of the steroids. The increase in wt. of the muscles was accompanied by a proportionate increase in nitrogen (protein) and water.

JUHN, M. & HARRIS, P. C. (1956). Responses in molt and lay of fowl to progestins and gonadotrophins.—*Proc. Soc. exp. Biol., N.Y.* **92**, 709-711. **3450**

Desoxycorticosterone acetate given s/c to pullets 59 days old interrupted egg production; moulting began 12 days later. Testosterone propionate also interrupted egg production, but moulting started 26 days later. Cortisone acetate had no effect. Pregnant mare's serum, follicle stimulating hormone, or luteinizing hormone injected s/c all interrupted egg production and initiated moulting; the effects were enhanced by simultaneous i/m administration of progesterone. Prolactin reduced but did not stop egg production, yet moulting began 6 days later.

—M.G.G.

SCOTT, E. B. & READ, W. O. (1957). Uterotrophic effect of digoxin administration in the rat.—*Proc. Soc. exp. Biol., N.Y.* **95**, 234-238. [Authors' summary slightly modified.] **3451**

Administration of digoxin to mature ovari-

ectomized rats resulted in uterotrophic response evidenced by heightening of epithelium and enlargement of epithelial nuclei, oedema of the stroma with vesiculation of stromal nuclei and prominence of stromal nucleoli, and recovery of the myometrium. The response of the castrate uterus to oestrone was intensified by concurrent administration of digoxin.

LUTWAK-MANN, C. & ADAMS, C. E. (1957).

Carbonic anhydrase in the female reproductive tract. II. Endometrial carbonic anhydrase as indicator of luteoid potency: correlation with progestational proliferation.—*J. Endocrin.* **15**, 43-55. **3452**

The authors' previous work established: that carbonic anhydrase endometrial activity depended on the presence of a progestationally-active substance, and increased markedly when this was administered; 14 different progestins were now evaluated for activity both by the anhydrase test and the conventional histological bioassay. The methods agreed closely, e.g. that progesterone proper and one other compound had high but transient (3 day) activity, 17 α hydroxy progesterone caproate had high and prolonged activity which stilboestrol could not block beyond 5 days. The anhydrase is more objective than the histological test.

—F. L. M. DAWSON.

WEIKL, A. (1957). Infektiöser Abortus bei Rind und Schaf. Erfahrungen bei Laboruntersuchungen. [Infectious causes of abortion in cattle and sheep.]—*Mh. Tierheilk.* **9**, 53-64. **3453**

1,496 bovine cases investigated in 1954-56 in Bavaria yielded:—18% *Brucella*, 9% fungi, 4% *Vibrio* [? foetus], 13% streptococci, *Escherichia coli*, *Corynebact. pyogenes*, 2% *Trichomonas*. 15% only of the cases involved the first 4 months of pregnancy. Organisms were sometimes present elsewhere although absent from the foetal stomach. The incidence of mycotic abortion appeared closely associated with winter feeding on the products of the bad harvest year 1955, and some herd outbreaks were encountered.

Some mucus agglutination tests for vibriosis were performed. 49 of 81 tests on sheep abortions yielded *Salmonella abortus-ovis*; and 15 "virus abortion." Some possibly causal organisms were recovered from almost every case in this species.—F. L. M. DAWSON.

IHLENBURG, H. (1957). Beitrag zur Zuchthygiene der Ziege. [Reproductive diseases in

goats.]—*Berl. Münch. tierärztl. Wschr.* 70, 145-146. [English summary.] 3454

One third of the goats in a herd of about 30 had to be served 3 or more times in 1954 and 1955. A yellowish discharge after service yielded staphylococci and *Proteus*. Three male goats which had inflammation of the prepuce yielded similar organisms; two had gross abnormalities of spermatozoan morphology. Service histories indicated spread by coitus. Local treatment with antibiotics gave satisfactory results.—F. L. M. DAWSON.

CRAIG, J. (1957). Infertility in rams.—*J. Dep. Agric. W. Aust.* 6, 215-218 & 221-223. 3455

In this paper, written for sheep farmers, factors causing temporary and permanent infertility are described. Flock management at mating time is outlined and culling of rams on the results of routine palpation of the scrotal contents is advised.—I. C. A. MARTIN.

ROBERTS, S. J. (1957). Ovarian dysfunction in the bovine animal.—*Vet. Rec.* 69, 667-671. 3456

In cattle, most types of ovarian dysfunction are secondary to (1) failure of the release of luteinizing hormone from the anterior pituitary causing cystic degeneration of the follicles, cystic corpora lutea and failure of or delayed ovulation; (2) the presence of pus or a degenerating embryo in the uterus causing persistence of the corpus luteum; or (3) reduced or limited nutritive intake and emaciation. Other types of ovarian dysfunction and diseases resulting in infertility are less common. They include adhesions, hypoplasias, tumours, and other congenital ovarian defects. Careful rectal and vaginal examinations are essential for accurate diagnosis in cases with symptoms of ovarian dysfunction. The treatment of the more common types affecting the ovary is discussed.

—A. ACKROYD.

SCHULTZ, H. (1956). Der Vitamin A- und β -Carotingehalt in Leber, Ovarien und Plasma des weiblichen Rindes und deren Beziehungen zum Ovarialzyklus und zur Sterilität. [Content of vitamin A and β -carotene in the liver, ovaries and plasma of cows and its relationship to the oestrous cycle and sterility.]—*Inaug. Diss., Munich* pp. 49. 3457

The estimations were made on 62 cows slaughtered in summer and 28 in winter; the blood plasma was studied in the latter group only. The pituitary and thyroid glands were

negative for vitamin A and β -carotene. Carotene content in both liver and ovary in winter was only half the summer level. Vitamin A content was the same in both groups. Ovary carotene levels were unrelated to those in liver and plasma; no relationship was apparent between infertility [alleged] in 18 of the cows, and either vitamin A or carotene content in any organ, but the carotene content of the ovary rose as the corpus luteum developed. A link between progesterone formation and β -carotene is suggested: reduced availability of the latter may hence contribute to an increased incidence of early foetal death.—F. L. M. DAWSON.

LASLEY, E. L. (1957). Ovulation, prenatal mortality and litter size in swine.—*J. Anim. Sci.* 16, 335-340. [Author's summary modified.] 3458

In 87 sows, representing five breeding groups, that had previously farrowed two litters, the number of live foetuses was 59% of the number of corpora lutea and dead foetuses accounted for 5%. Repeatibility of litter size was 0.15 between first and second litters, 0.1 between second and third litters and -0.06 between first and third litters. Heritability of litter size was 0, 8 and 5% for the first, second and third litters, respectively. Heritability of corpora lutea count was 10%. Genetic and environmental correlations are summarized. None of the genetic parameters was statistically significant.

LEBEAU, A. (1957). Emploi du lobe postérieur d'hypophyse comme complément du traitement abortif par les oestrogènes de synthèse, en médecine canine. [Treatment with posterior pituitary extract to prevent pyometra after the use of synthetic oestrogens against conception in the bitch.]—*Bull. Acad. vét. Fr.* 30, 151-154. 3459

L. considers that 25% of bitches so treated with oestrogens, develop pyometra 6 months to a year later; (he attributed this to retention of the early embryos). However, 18 months of the practice indicated that a prophylactic [unstated] dose of posterior pituitary extract, given 8 days after the final dose of oestrogen, prevented this complication.—F. L. M. DAWSON.

I. DEWAR, A. D. (1957). The endocrine control of the extra-uterine weight gain of pregnant mice.—*J. Endocrin.* 15, 216-229. [Abst. from author's summary.] 3460

II. DEWAR, A. D. (1957). Body weight changes in the mouse during the oestrous

cycle and pseudopregnancy.—*Ibid.* 230-233. [Author's summary slightly modified.] 3461

I. The author's findings support a hypothesis that the weight increase during pregnancy in the mouse is under the control of ovarian progesterone, the luteal activity being maintained by the presence of placentae in the uterus (probably by placental luteotrophin).

II. Apart from a tendency to a slight increase at oestrus, no marked cyclic alterations in body weight are evident in the mouse during the oestrous cycle. In pseudopregnancy, however, a definite wt. increase (on average 7%) occurs; this wt. gain is rapidly lost after removal of the ovaries, but may be maintained after spaying by the administration of progesterone, thus indicating a close similarity to the wt. change of pregnancy.

SCHUMANN, H. (1956). Erbliche Hautkrankheiten und Anomalien des Haarkleides beim Schwein. [Hereditary skin disorders and anomalies of the coat in pigs.] — *Dtsch. tierärztl. Wschr.* 63, 459-462. 3462

The following hereditary skin disorders in pigs were described briefly: epitheliogenesis imperfecta, acanthosis nigricans, pityriasis rosea, spontaneous pyoderma, melanotic tumours, alopecia and woolly hair.—M.G.G.

JULIAN, L. McK., TYLER, W. S., HAGE, T. J. & GREGORY, P. W. (1957). Premature closure of the spheno-occipital synchondrosis in the horned Hereford dwarf of the "short-headed" variety.—*Amer. J. Anat.* 100, 269-287. [Authors' summary modified.] 3463

Premature closure of the spheno-occipital synchondrosis was detected in bovine dwarfs of this type. Partial synostosis of this joint was detected as early as the first day of extra-uterine existence. Complete closure was found in all dwarf animals that were studied at upwards of 5½ months of age.

See also absts. 3194-3206 (brucellosis); 3376 (malformations caused by vitamin deficiency); 3377 (congenital goitre in piglets); 3410 (cortisone and chick embryo development); 3420 (development of testis and epididymis in cats); 3421 (mast cells in testis and epididymis); 3471 (staining of foetuses and foetal membranes); 3475 (book, physiology of prematurity); 3475 (book, hereditary diseases).

ZOOTECHNY

DONEY, J. M. (1957). Effects of inbreeding on four families of Peppin Merinos.—*Aust. J. agric. Res.* 8, 299-311. [Author's summary copied verbatim.] 3465

The influence of inbreeding on several fleece and body characters in a strain of Australian Merino sheep is reported. The four families from which data were taken were derived from a single strain of Peppin Merinos. Inbreeding

In phenotypically normal Hereford cattle the age at closure of the spheno-occipital synchondrosis appears to be 24-36 months; however, some individuals show partial fusion at a period between that of dwarfs and the majority of the normal population. It is suggested that these animals represent an intermediate group and that the alteration is a reflection of the action of the major conditioning gene. The manner of closure is similar in both dwarf and normal animals, though differing in the time of onset and possibly in rate. Premature closure of the spheno-occipital synchondrosis points to achondroplasia as being involved in the dwarfing processes responsible for this type of dwarfism. Microscopic and radiographic aspects of the spheno-occipital synchondrosis of normal and dwarf animals are shown in 9 plates.

MILLEN, J. W. (1956). Experimental hydrocephalus.—*Proc. R. Soc. Med.* 49, 980-982. 3464

Hydrocephalus was produced in 242 out of 303 baby rabbits by depriving the mothers of vitamin A. Administration of the deficient diet began several months before conception and continued until weaning. Hydrocephalus could be diagnosed in the young by the persistence of an anterior fontanelle at one week of age. It is considered that the experimental condition is probably due to overproduction of cerebrospinal fluid by the choroid plexuses, and not to compression of nervous tissue by bone growth (no signs of such compression were found), nor to obstruction of the aqueduct (the lumen was not significantly smaller than in normal rabbits). Moreover, in the normal young of treated mothers the c.s.f. pressure was high. Peroral administration of vitamin A to hydrocephalic animals reduced the c.s.f. pressure to normal within 3-4 weeks.—M.G.G.

without selection has been carried on since the foundation of the families between 1939 and 1944. Inbreeding is responsible for a reduction in body size, fertility, greasy and clean fleece weight, and wrinkle score, but has relatively little influence on the fleece components (yield, staple length, fibre diameter, and density of fibre population). It follows that the reduction in fleece weight is a direct consequence of a

decrease in total fibre number. Since the reduction in fibre number is likely to be a correlated effect of low pre-natal and early post-natal growth rates, it is suggested that the inbreeding has had no genetic effect on the several independent systems involved in adult wool production but has affected only those associated with fitness and vigour. The depression due to inbreeding therefore may not be caused by specific gene fixation but by increased homozygosity *per se*.

TECHNIQUE AND APPARATUS

GUHA, A. (1957). **A new technique for the viable count of bacteria.**—*Nature, Lond.* **179**, 1360. **3467**

Bacteria, which are grown in nutrient broth containing 2, 3, 5-triphenyltetrazolium hydrochloride (one g. per 100 ml. of broth) and killed with formalin, have a reddish tinge when seen through the microscope whereas dead cells are completely transparent. The hue is due to the formation of red formazan particles.—M.G.G.

TOMLINSON, A. J. H. (1957). **Infected air-borne particles liberated on opening screw-capped bottles.**—*Brit. med. J.* July 6th, 15-17. **3468**

Infected air-borne particles were produced when screw-capped bottles containing slope cultures of *Chromobacterium prodigiosum* were opened. The particles appear to be formed when the film of bacterial growth on the rim of the bottle is broken. The use of a plastic seal which is opened by piercing with a hot wire is discussed.—M.G.G.

ZAGAEVSKII, I. S. (1957). **[Disinfection of eggs before incubation.]**—*Veterinariya, Moscow* **34**, No. 3, pp. 67-72. [In Russian.] **3469**

Exposure of eggs to a mercury-quartz lamp at a distance of 40 cm. for $\frac{1}{2}$ –1 min. was an effective method of disinfection. Chemical methods were also discussed.—R.M.

See also absts. 3175-3176 (TB.); 3205 (brucellosis); 3216 (aerobic cultivation of *Cl. tetani*); 3242-3243 (toxoplasmosis); 3248 & 3250-3252 (F. & M. disease); 3259-3261 (fowl pox); 3267 (adaptation of equine abortion virus to HeLa cells); 3276 (swine fever virus, tissue culture); 3282 (porcine gastroenteritis virus, tissue culture); 3294 (Newcastle disease, tissue culture); 3301 (safety-testing of poliomyelitis vaccine); 3305 (serum protection test in tissue culture in diagnosis of rickettsioses); 3357 (blood sugar estimation); 3402 (liver-function test in ragwort poisoning).

MISCELLANEOUS

KUZ'MINOV, P. I. (1956). **[Unilateral pneumothorax in calves.]**—*Trud. mosk. vet. Akad.* **10**, pp. 35-46. [In Russian.] **3472**

A clinical study of the effects of "open" and "closed" unilateral pneumothorax on the

MEESER, M. J. N. & NEL, T. G. (1956). **The impact of intensive cattle farming on game and game preservation in the vicinity of the Kruger National Park.**—*J. S. Afr. vet. med.* **Ass.** **27**, 251-254. **3466**

Intensive cattle raising is being successfully carried out on a farm bordering a game preservation area. The numbers of wild grazing animals on the farm have been reduced, and fencing has been erected which is regularly patrolled and kept in good repair.—M.G.G.

KOHN, J. (1957). **A rapid method of estimating blood-glucose ranges.**—*Lancet* **272**, 119-121. [Author's summary modified.] **3470**

K. described a simple method based on the use of enzyme test strips ("Clinistix"). The test requires no apparatus or reagents and can be completed in about a minute. It indicates the clinically important blood-sugar ranges but does not provide exact figures. It should prove a helpful adjunct in diagnosis and treatment, particularly in emergency cases when laboratory facilities are not available, and in conditions in which speed and simplicity may outweigh the advantages of an accurate biochemical determination.

BEER, J. (1957). **Die Färbung nach Stamp als Universalfärbung bei der Untersuchung von Feten und Eihäuten. [The staining method described by Stamp, as a universal stain for the examination of fetuses and foetal membranes.]**—*Dtsch. tierärztl. Wschr.* **64**, 204-206. **3471**

The technique described by Stamp, as modified by Mitscherlich (1954), is recommended as a universal staining method for the examination of fetuses and foetal membranes. Brucella, viruses of the psittacosis-lymphogranuloma group, and rickettsia stand out bright red against the rest of the material which is stained by malachite green. Vibrios and other bacteria are also clearly visible.—M.G.G.

respiratory and cardiovascular systems of young calves. Experiments were performed on 2 groups of 6 and 10 animals respectively whose ages ranged from 6-13 months. In the first group a needle, 2-4 mm. in diameter, was inserted into

the right pleural sac through the thoracic wall at the level of the 6th or 8th intercostal space and kept in position for 25–40 min. Only relatively slight compensatory reactions were noted in the respiratory and cardiovascular systems. After 14–18 days all animals were clinically normal. In the second group the left pleural sac of each calf was opened by surgical removal of a part of the 6th or 7th rib, producing a wound 4–8 × 4–5 cm. large. The operations were performed in all except two cases with the animals in a standing position. This position

was found to be essential for satisfactory results. The changes noted are described with several diagrams, followed by an analytical discussion. On the whole both the “open” and the “closed” phases of pneumothorax were well tolerated. No signs of shock were noted. Complete reabsorption of the air inside the pleural cavity took 13–20 days when the wound was closed during expiration, 24–28 days when during inspiration. It was concluded that intrathoracic surgical interference in cattle does not endanger life.

—S. TERLECKI.

REPORTS

BECHUANALAND PROTECTORATE. (1956). **Annual Report of the Department of Veterinary Services for the year ended 31st December, 1955.** [ROE, J. E. R.] pp. 50. 3473

The shortage of detention officers at Lobatsi Abattoir hampered the work of the Department during the year, as veterinary officers from the field had to be utilized for meat inspection duties. The abattoir's real first year of working was an unqualified success.

The number of castrations carried out by the Dept. increased during the year by just over 11,000 for bovines and by 4,000 for smaller stock, totalling 35,446 for the former and 13,540 for the latter.

The veterinary school at Ramathlabama had not yet been erected but it was hoped that it would be built early in 1956. Country-wide vaccination of all cattle is carried out against ANTHRAX, a total of 1,181,385 cattle being vaccinated during the year. Eight outbreaks occurred in which 60 cattle died.

The good results against BLACKLEG by vaccination are shown by the decline in the number of deaths, which was considerable.

Free vaccination against abortion is given in the southern Protectorate. All abortions in cattle are ascribed to *Brucella* infection, but although the figure of 2,177 abortions for the whole territory may seem misleading, it is certain that a high proportion of these is due to BRUCELLOSIS.

TRYPANOSOMIASIS is a problem only in Ngamiland where the tsetse fly interferes considerably with the keeping of cattle in the area bordering on the swamps.

1,460 dogs were inoculated against RABIES

with chick embryo vaccine produced at Onderstepoort; no failures were reported. “LUMPY SKIN” DISEASE was reported in August although only one young ox was known to be affected. Control of the disease is impossible in the present state of our knowledge and in the absence of an effective vaccine. Quarantine measures are useless. HEARTWATER is by far the most important tick-borne disease. Reported deaths from this cause totalled 961 cattle and 4,295 in smaller stock. Other diseases mentioned are ANAPLASMOSIS, PIROPLASMOSIS, HELMINTHIASIS and STREPTOTHRICOSIS. There are eight photographs.

—D. S. RABAGLIATI.

DENMARK. (1957). Årsberetning fra Veterinær-direktoratet for Året 1955. [Denmark: **Annual Report of the Veterinary Services for 1955.**] [SCHRØDER, K. C.] pp. 82. Copenhagen: J. H. Schultz A/S. [In Danish. French summary.] 3474

The report begins with tables showing the incidence of the principal infectious diseases. The following were not reported in Denmark in 1955: equine infectious anaemia, sheep scab, sheep pox, porcine brucellosis, swine fever, fowl cholera, rabies. There were 43 outbreaks of FOOT AND MOUTH DISEASE, and 583,000 animals were given prophylactic vaccination (11,354 litres of vaccine). 36,000 blood samples and 31,300 placentas were examined for *Br. abortus*: avian type tubercle bacilli were isolated from the placenta from 26 cases of ABORTION in cattle. Tuberculin tests were performed in 491 herds, and 260 reactors were slaughtered, with state compensation.—R.M.

BOOK REVIEWS

LANMAN, J. T. [Edited by.] (1957). **Physiology of prematurity. Transactions of the first conference, March 21, 22, and 23, 1956, Prince-**

ton, N. J. [Sponsored by the Josiah Macy, Jr. Foundation.] pp. 151. New York: Josiah Macy, Jr. Foundation. \$3.25. 3475

This reports a discussion centred around two papers: foetal-maternal endocrinology in late pregnancy, by J. T. Lanman, and the foetal and placental circulation in late pregnancy, by G. S. Dawes. The latter referred to his own work on the foetal circulation of lambs [see also *V.B.* 26, 264 & 2086; 27, 260].—R.M.

KOCH, P., FISCHER, H. & SCHUMANN, H. (1957). *Erbpathologie der landwirtschaftlichen Haustiere. [Hereditary diseases in farm animals.]* pp. xv+436. Berlin (& Hamburg): Paul Parey. DM 52. 3476

As a first attempt to survey the world litera-

ture on hereditary diseases of farm animals, this book has successfully fulfilled a difficult task. The text is divided into chapters for each species of animal: ox, horse, pig, sheep, goat and poultry. Within each chapter the diseases are arranged according to the part of the body affected, except for lethal factors, which are dealt with separately and according to the classification proposed by Lerner (1944). The 1,300 references are arranged alphabetically at the end of the book. There are 215 illustrations, some original and some taken from other publications. A glossary defines genetical terms. The authors are to be congratulated on the thoroughness of their work.—R.M.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

CUNHA, T. J. (1957). *Swine feeding and nutrition.* pp. xv+296. New York (& London): Interscience Publishers, Inc. \$5.00.

GRZINEK, B. (Revised by GYSTORFF-SASSENHOFF.) (1957). *Krankes Geflügel. Handbuch der Geflügelkrankheiten. [Handbook of poultry diseases.]* pp. 376. Berlin (& Stuttgart): Verlag Fritz Pfenninstorff. 7th edit. DM 14.

LERCHE, M., RIEVEL, H. & GOERTTLER, V. (1957). *Lehrbuch der tierärztlichen Lebensmittelüberwachung. [Text-book of food*

inspection.] pp. xvi+1078. Hanover: Verlag M. & H. Schaper. DM 148.

MEISTER, A. (1957). *Biochemistry of the amino acids.* pp. xiii+485. New York (& London): Academic Press Inc. \$10.00.

PANTELOURIS, N. M. (1957). *A handbook of animal physiology.* pp. viii+255. London: Baillière, Tindall & Cox. 25s.

SPREHN, C. N. W. (1957). *Helminthen und Helminthiasen des Schweines. [Helminths and helminth infestations of pigs.]* pp. vi+174. Jena: Gustav Fischer Verlag. DM 12.30.

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